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ABSTRACT

A study was conducted at the City University of New York (CUNY) to identify the variables that distinguish students who persist through their first and into their second year of college from those who drop out along the way. Retention survey forms were sent to 2,063 students admitted to career programs in fall 1979 and to 3,291 students admitted in fall 1978 seeking information on demographics, prior college attendance, educational aspirations, reasons for enrolling in and remaining in college, satisfaction with schooling, assessment of services, and reasons for dropping out. Responses from 412 of the 1979 sample, including 383 persisters and 29 non-persisters, and from 298 of the 1978 sample, including 230 persisters and 68 non-persisters, revealed that: (1) the non-persister did not differ from the CUNY persister in terms of age, sex, or marital or family status; (2) while the majority of both groups lived with their family, a larger proportion of non-persisters lived alone or with friends; (3) the two groups differed significantly in terms of educational aspirations, with the persisters having higher goals; and (4) among the most significant variables predicting CUNY applicants' enrollment decisions were whether the curriculum was perceived as relating to their career goals; the geographical locations of their first-choice college; and whether respondents reported needing remedial courses. Appendices include the survey instrument and a comparison of 1979 persisters and non-persisters. (HB)

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PERSISTERS AND NONPERSISTERS: CRITICAL CHARACTERISTICS AFFECTING RETENTION AMONG CUNY COMMUNITY COLLEGE CAREER PROGRAM STUDENTS

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Foreword

Subsequent to a study which delineated the characteristcs that effectively differentiated enrollees from "no shows" in City University of New York (CUNY) Community College career programs, it was hypothesized that there might be in the data predictive capabilities for retention of enrollees which could assist planners and admissions personnel in reducing attrition and maximizing resource utilization. A study was projected which would test predictions based on Fall 1978 and 1979 allocants to CUNY. Enrollment and retention data (sex, type of training, work status, in-school experience and estimates of satisfaction) were to be gathered.

Synthesizing the foregoing data would, it was hoped, also enable recommendations for institutional strategies to increase retention of enrollees. The low level of prediction of the factors related to persistence, however, as reported herein, should not be presumed to be a "failure" of the experiment. Rather, the results do point to means by which the experimental design can be refined (e.g., different sampling procedures), and contain many suggestions for followup research about the differences between persisters and non-persisters, despite the fact that, in this design, prediction of persistence did not exceed chance.

As always, IRDOE welcomes correspondence from readers on the subject and other experiences related to the problem.

Lee Cohen, Ph.D.
Director

ACKNOWLEDGEMENTS

A great amount of effort on the part of a number of people went into this project. As Director, I want to acknowledge their contributions, thank them inidividually and collectively for their hard work, and describe some of the problems we encountered in completing this research.

Ms. Carla Collins, a graduate student in CUNY's Social Personality Psychology Program, was given the arduous task of coordinating the administration of the questionnaire and of the mail and telephone followups. This involved preparing mailing labels, locating phone numbers, telephoning people, and recording responses. In this, she was assisted by Ms. Karen O'Brien, our Administrative Secretary. Ms. Collins also oversaw the tabulation of the questionnaire responses--their coding, checking, keypunching, and verification--and was aided by Mr. John Antici, Ms. Laurie Dobyns, Ms. Rachel Gartner, Ms. Jennifer Haas, Ms. Sarah Hunt, Ms. Nancy Karro, Mr. Harvey Shindelman, and Ms. Mary White...graduate and undergraduate students from several colleges and universities.

Ms. Collins also conducted the analyses for the 1979 Sample of respondents. She and Mr. Fred W. Wheeler, a long-time associate and computer consultant, worked diligently to refine the sample and to make the data as unambiguous and "clean" as was possible.

Fred Wheeler also initiated the analyses for the 1978 group of respondents. Subsequently, Ms. Mara Zibrin, a graduate student in CUNY's Educational Psychology Program, assumed this responsibility. Ms. Zibrin's expertise in statistics and computer applications was especially useful in the performing and interpreting the complex discriminant analyses. She also contributed to the preparation of the data as it appears in this report, and assisted in writing it.

In the body of this report (and by its date) we refer to difficulties we had that affected our completion date: completed questionnaires temporarily disappeared, tapes were inadvertantly erased, and random samples were lost and had to be accurately generated for a second time to effect perfect merges with other data sets. We had to call upon, time and time again, experts from the Graduate School's Computer Facility, CUNY Central Computer Center, and from UAPC--the University Application Processing Center. We'd like to thank the people on these staffs for their help and for their understanding.

Ms. Karen O'Brien typed this manuscript in all its draft versions as well as in its final form. She, too, was plagued by this project's gremlins which were responsible for the many disruptive errors (most of which we believe we found and corrected), and for many changes. Visually, the document reflects her high level of professionalism and concern.

I would also like to thank Dr. Lee Cohen, Director of the Institute for Research and Development in Occupational Education, and Ms. Melanie Bentley, Executive Assistant, for cheering us on and easing our way when we asked for help.

This project was funded by the Bureau of Grants Administration of the New York State Education Department. Mr. Mike Van Ryn, Chief, and Mr. Lawrence E. Gray, our project liaison, continued to be supportive of our efforts to shed some small ray of light on what we believe are basic questions.

Research, in my opinion, should be provacative. The results of this project raise as many questions as we answer. For this, I take complete responsibility.

Barbara R. Heller
Project Director

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PERSISTERS and NONPERSISTERS: Critical Characteristics Affecting Retention Among CUNY Community College Career Program Students

For the 1980-81 school year, the CASE Institute for Research and Development in Occupational Education (IRDOE) received a grant under the Vocational Education Act[1] to ascertain the determinants of retention in CUNY (City University of New York) Community College career programs. The research was designed to capitalize on a previous study of factors affecting enrollment[2], and to complement other investigations being undertaken by the Research Coordinating Unit of the New York State Education Department.

BACKGROUND

Decreasing college enrollments and the changing composition of the student body have provided much of the impetus for institutions to examine the characteristics of both the population they are recruiting and the characteristics of those students who persist to graduation. While information pertaining to enrollment patterns enables colleges to design and implement more effective marketing strategies and to plan more relevant program offerings, understanding the correlates of retention helps assure that the needs of the primary clientele--students--continue to be served.

Under its open admissions policy, the City University of New York makes every effort to allocate applicants to the college and program of their first choice and is successful in doing so in almost all cases. Based on past experience, however, about 40 percent of the allocants overall will not enroll

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[1] VEA #53-81-0395.

[2] VEA #80-3A-1037GPS. B.R. Heller, F. Wheeler, and W. Geringer. Critical Characteristics of Incoming CUNY Community College Freshmen: A Study of the Characteristics of Enrollees and Nonenrollees. Graduate School and University Center, City University of New York, Institute for Research and Development in Occupational Education, CASE #03-81, October 1981.

in the allocated CUNY college,[1] but instead will continue their education at other CUNY units, at private and other public two- and four-year colleges, or in trade or technical schools. Only a relatively small proportion, less than 9 percent, do not enroll in some form of postsecondary schooling during the year they applied for admission to CUNY.[2]

Of greater interest to the present investigation is the loss of students during the first year: it is estimated to approximate 20 percent, a high figure but one fairly frequently reported in retention studies. For institutions, dropouts are wasteful of resources; to the extent that filled classes contain eventual dropouts, then a college cannot accommodate other possibly more retainable students. For individual students, dropping out of college can be discouraging and, in some instances, add to their sense of failure; for all students though, dropping out is costly both financially and in terms of time spent pursuing a schooling choice that is wrong for them.

The present research project focuses on the important problem of student retention in CUNY Community College career programs. The primary purpose of this study is to identify the variables that distinguish students who remain in school--persist--through their first and into their second year, in contrast to those who drop out (or stop out) along the way. Although this research stands on its own as an examination of factors affecting student retention, it was intended to build on the wealth of information we collected for one particular groups of students--those allocated to Community College career programs for entry in the Fall 1979 semester. This study describes what happened to these students subsequently. It also sought to develop predictors of retention and to validate them with another, presumably similar, group of students: the Fall 1978 allocants. By studying these two groups of cohorts we hoped to identify and validate predictors of retention and to compare these variables with those that we previously found predicted enrollment.

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[1] B. Kaufman and R. Botwinick. Student Retention and Graduation at the City University of New York. City University of New York, Office of Program and Policy Research, June 975.

[2] Heller, Wheeler, and Geringer, op. cit.

Our Enrollment Study was conducted during 1979-80. The major findings, based on responses to a questionnaire (hereafter for brevity, the Enrollment Questionnaire), indicated that:[1]

- The respondents could be classified into four groups: CUNY Community College Enrollees (those that enrolled in the community college and career program to which they were allocated), accounting for 74.9 percent of the sample; Non-enrollees (those that pursued additional schooling at other institutions) 12.2 percent; Dropouts (those that had dropped out of school by the time the questionnaire was administered--the Spring semester of the first year), 4.4 percent; and a group designated as Never-in-school (those who did not start a postsecondary education), 8.5 percent.

- These four analytic groups presented different profiles suggesting some possible new or refocused recruitment and programmatic activity.

- Relatively few variables, all of which could be incorporated into a standard application form, correctly predicted group membership in 8 out of 10 cases--significantly better than chance and soon enough in the allocation-enrollment process to provide administrators with good early estimates of who would probably enroll.

There remained a number of timely questions that would expand and consolidate the knowledge gained in the 1979-80 study. Three of these are addressed here:

1. Can we identify a set of variables that distinguish the CUNY Community College student who persists in a career program from the student who does not persist?

2. Are retention predictors generalizable--or, in other words, do they accurately predict retention for a sample other than the one on which they were developed? And,

3. How do the factors that predict persistence relate to those that predict enrollment?

As a working hypothesis, the authors undertook the present study with the assumption that many if not all of the factors that relate to the enrollment decision continue to play a role in the student's decision to remain in college. Thus, the findings described in this report and those of the Enrollment study allow a first-time view of the longitudinal relationship between between the decision to enroll in a career program and continued attendance.

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[1] Ibid. Copies of the report describing this study are available from the authors.

METHODOLOGY

The present study focuses on students allocated to CUNY Community College career programs for the:

- Fall of 1979, approximately 21 months prior to the time the present questionnaire was administered.
- Fall of 1978, about 33 months before the present questionnaire was administered.

Our primary data source was a survey questionnaire, supplemented with other information that was available for both samples. Before describing these data and how we obtained them, it is important to discuss the samples.

STUDY SAMPLES

We wanted to isolate variables that would enable us to predict student retention, assess the stability of these variables on a second sample, and compare them with the factors associated with enrollment in CUNY Community College career programs. To this end, we assumed that the Fall 1979 allocants and the prior year's cohorts (the Fall 1978 allocants) were similar in all important respects.

1979 Sample(s) Development

For the Enrollment Study, we drew a 7,000 random sample from all students who had applied and were allocated to CUNY Community College career programs for entry in the Fall of 1979. Of these, 2151 responded to the Enrollment Questionnaire (1979-80); it was this group of respondents that formed the basis of the 1979 sample used in the present research.

For the 2151 respondents (as well as from the sample of 7,000), we had available data from the CUNY application form plus other information from the colleges indicating whether in fact applicants did enroll in the school and program to which they had been allocated. In addition, for the Enrollment Questionnaire respondents, we also had a large amount of data pertaining to their decision to continue their education after completion of high school and to their first-semester experiences in college.

The 1979 Retention Sample. Approximately three-fourths of the 2151 respondents had enrolled in and were attending (as of April 1980) the CUNY Community College to which they were allocated. Significantly smaller proportions, as noted on page 3, were enrolled in other colleges, had decided not to start college, or had already dropped out. Irrespective of their status, all 2151 were sent the present questionnaire--the Retention Questionnaire. The respondents to the Retention Questionnaire constitute the 1979 Retention Sample.

The diagram on the following page presents a pictorial view of the development of the 1979 Retention Sample and also summarizes what types of data (sources) are available for it. Also apparent in Figure 1 is the low response rate--25.9 percent--to the 2,063 Retention Questionnaires that were deliverable.

What is not readily observable is how representative the 1979 Retention Sample is of the Fall 1979 allocant. To begin with, as compared with the original sample of 7,000, the Enrollment Sample (of 2151 respondents) was:

- younger, more likely to be female, and more recently graduated from high school;
- more likely to have high scores on the college admissions tests;
- somewhat overrepresented in terms of the proportion having enrolled in the CUNY Community College to which they were allocated; and
- more likely to want to attend and to be allocated to Community Colleges located in Brooklyn and Queens.

But, the two samples were alike in many other important ways.[1]

Page 12-14 of this report presents the comparison of the 1979 Retention Sample with the 1979 Enrollment Sample, which addresses the issue of the representativeness of the respondents to the Retention Questionnaire administered in the late Spring 1981.

The 1979 CUNY Retention Sample. However, not all the respondents to the Retention Questionnaire were used in the analyses of retention. As can be seen in Figure 1, a total of 99 (of the 511 respondents about whom we have college-status data) were not attending or had never attended CUNY

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[1] Heller, Wheeler, and Geringer. Ibid.

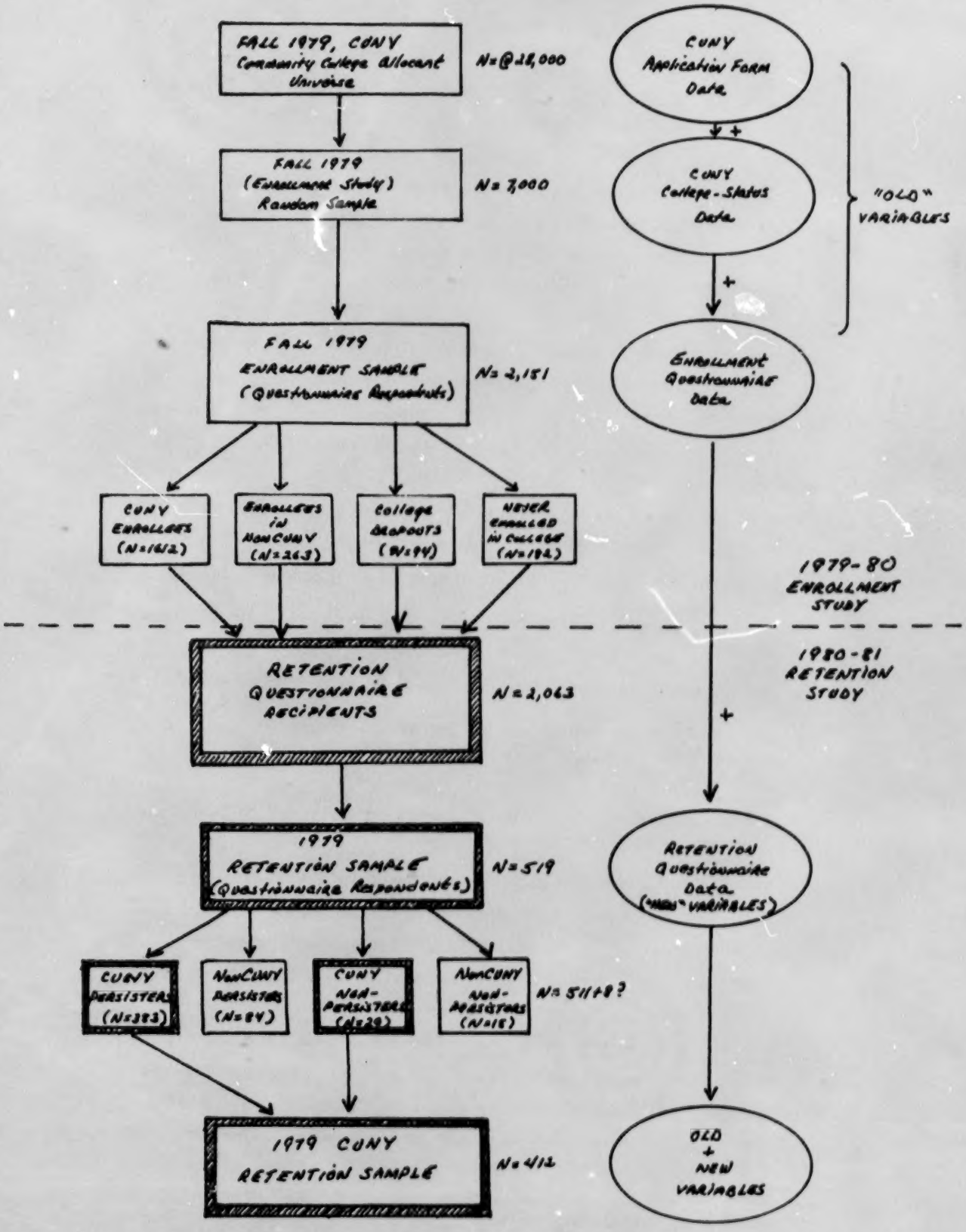

Figure 1: Development of the 1979 Sample(s)

Community Colleges. Since we were interested in persistence in CUNY two-year programs, the final sample--1979 CUNY Retention Sample--is limited to 412 respondents: 383 defined as CUNY Community College Persisters; and 29 defined as CUNY Community College Nonpersisters.

CUNY Community College Persisters are defined as students who enrolled in a career program in the Fall 1979 and, as of late Spring 1981, were still in attendance. The comparable Nonpersisters were no longer enrolled when the Retention Questionnaire was administered in late Spring 1981.

1978 Sample(s) Development

The 1978 Samples are roughly equivalent to the 1979 Samples.

1978 Retention Sample. The 1978 Retention Sample was constructed using procedures similar to those described above (see Figure 2 on the following page): we selected a random sample of 4,000 applicants who were allocated to CUNY Community College career programs for the Fall of 1978.[1] All 4,000 of these allocants were sent a Retention Questionnaire, of which only 3,271 were delivered. In comparing the number of questionnaires that were returned to us as undeliverable, it is interesting to note that over the course of the one year (between the Fall 1978 and Fall 1979), the number of obsolete addresses increased eight-fold (i.e., from 88 to 729).

For the 3,271 (and for the 4,000) allocants, select data from the CUNY application form was available for study. For the respondents to the Retention Questionnaire we have, of course, additional information. Thus, with the exception of the Enrollment Questionnaire data, some comparable information exists for both the Fall 1978 and the Fall 1979 Retention Samples. (See Figure 2, page 8.)

1978 CUNY Retention Sample. As was the case with the 1979 Retention Sample, not all 1978 respondents to the Retention Questionnaire were used in the major data analyses. We limited the final sample

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[1]We are grateful to the University Application Processing Center, and particularly to Michael McGinniss, for assistance with the construct of this sample.

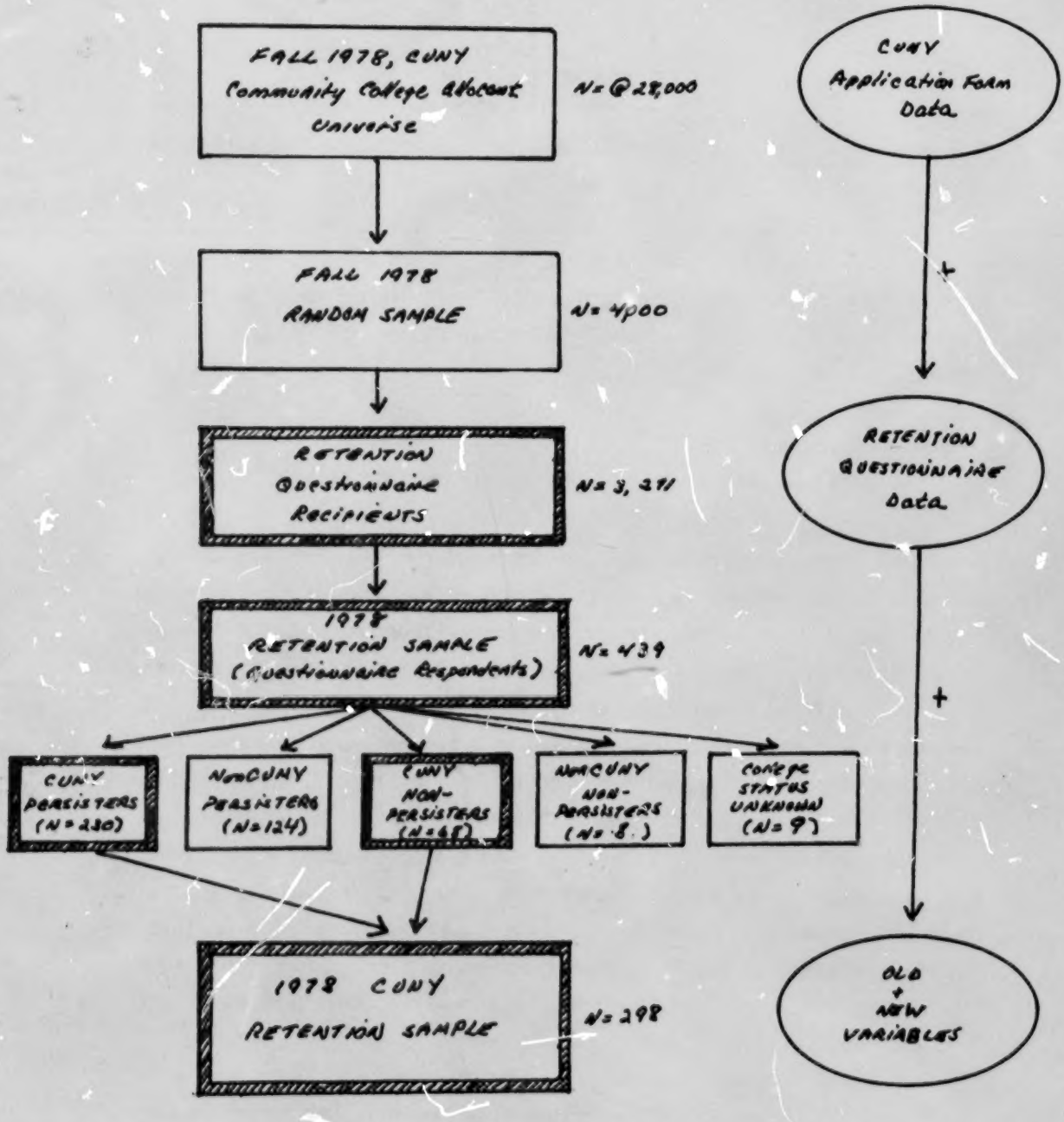

Figure 2: Development of the 1978 Sample(s)

to respondents who were or who had had attended CUNY Community Colleges. The 439 respondents to the Retention Questionnaire--a 13.4 percent response rate--were distributed as follows (see Figure 2): CUNY Community College Persisters, N = 230; CUNY Community College Nonpersisters, N = 68; and all others, N = 141 (124 students who had enrolled and continued in colleges other than the particular CUNY Community College to which they had been allocated for the Fall of 1978; eight NonCUNY Nonpersisters; and nine whose status was undeterminable).

The Results section will describe how representative the 439 respondents are of the Random Sample of 4,000. We will also discuss the comparability of the 1979 and 1978 Retention Samples to better understand the level of predictive accuracy achieved with the retention predictor variables.

RETENTION SURVEY QUESTIONNAIRE: DESIGN AND ADMINISTRATION

A copy of the survey instrument, "Staying in College: A Survey of Student Retention", is appended (see Appendix A). Its development was started by project staff early in the year and involved input from specialists in the CUNY system. The research literature suggested several additional areas for inclusion, and the final draft also incorporated some of the pertinent variables from the Enrollment study.

The Retention Questionnaire was designed to supplement other information, and contained 25 questions--demographics, postsecondary schooling history, educational aspirations, reasons for enrolling in and continuing at college, and ratings of satisfaction with schooling. Respondents were also asked to assess some educational services and instruction, as well as the quality of education offered by the college they were attending. Those who changed colleges or who stopped out or dropped out were asked about their reasons for doing so.

The 6-page Questionnaire was sent to the Fall 1978 and 1979 Retention Samples, each with a different cover letter. The first mailing of the Questionnaire was in May 1981. The followup was conducted at the end of July. As noted, two mailings (plus the telephone followup, see below) yielded very different response rates for the two samples: 25.9

percent or 519, and 13.4 percent or 439 respondents, respectively.[1]

A telephone followup of nonrespondents was undertaken in July and August, although we were able to locate only very few phone numbers for the 1978 Sample (231 in total). Of these, we completed only 75 calls--that is, made contact with a resident at that address in only 75 instances; the remainder were either not completed because there was no response in five days'/nights' attempts to call or, more typically, because the student was no longer at that address/phone number. (A very similar pattern emerged for the 1979 Sample. Here, we had phone numbers available from the previous year, but of the total of 874, we reached the student--or another household member--in only 238 instances.) In those cases where we were able to make personal contact, the response rate to our request to complete and return the Questionnaire was good: 17 were returned by the 1978 Sample--about 23 percent of the 75 contacts--and 66 (about 28%) by the 1979 Sample. While certainly not as dramatic as the telephone followup response to the Enrollment study, these results again suggest that telephoning is a worthwhile followup technique. However, as addresses (and hence, phone numbers) become older, it becomes less cost-effective and less likely to result in a response rate substantially different from that which can be obtained through a second mailing.

DATA ANALYSIS

The analyses involved several phases, including coding questionnaire returns and creating new computer files, merging and transferring the data to disk, obtaining frequencies and tests of significance for all variables, and then conducting the discriminant analyses to first identify and then to validate the predictor variables. Documentation concerning these steps is available for inspection in IRDOE's offices.

Coding Questionnaire Returns

The Retention Questionnaire proved relatively unambiguous and easy to

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[1] An additional 23 questionnaires were returned with the I.D. number defaced and thus are not included in the analyses. It should be noted that the assigned I.D. number was project-unique and bore no resemblance to students' social security numbers used as I.D. by CUNY and other schools.

code. A coding manual was developed and each questionnaire was coded and double checked before the data was keypunched, verified, and put on tape and then disk.

Based on questionnaire responses, we were able to determine for each respondent if she/he was attending college during the 1980-81 year and, if so, what specific institution; or if not, whether he/she had dropped out (or stopped out), had graduated, or had never attended a CUNY two-year college or any other postsecondary educational institution. This enabled us to distinguish respondents who had or were attending CUNY Community Colleges from respondents who had or were attending other institutions, which in turn, allowed us to create the 1979 and 1978 CUNY Retention Samples described above.

Creation of the Master Files

We had three sets of data available for the 1979 population: CUNY application data, Enrollment Questionnaire data, and Retention Questionnaire data. The Application and Enrollment Questionnaire data (i.e., "old" variables) were available for 2063 people comprising the 1979 Enrollment Sample, while the data from the Retention Questionnaire ("new" variables) was available only for the 1979 Retention Samples (see Figure 1, page 6.) Prior to creating a master file comprising these three merged data sets, we ran preliminary analyses of each variable, primarily to determine how representative the Retention Sample was.

As is illustrated in Figure 2, page 8, there were only two sets of data available for the 1978 Retention Sample: select CUNY application data and Retention Questionnaire data. Again, before merging these data sets and eliminating the nonrespondents (to the Retention Questionnaire), we examined the representativeness of the respondents; these comparisons are described below.

Statistical Analyses

Preliminary analyses were done on all variables and included frequencies and cross-tabulations and, as appropriate, t-tests and chi-squares. Linear discriminant analyses were employed to identify variables that would

predict persistance in CUNY Community College career programs.[1] This is a technique that classifies groups along a number of different variables (i.e., characteristics), and that enables us to distinguish between students who persisted in college from students who did not persist.

The discriminating (predicting) variables were based on the 1979 CUNY Retention Sample results and validated on the 1978 CUNY Retention Sample; another set of predictor variables were developed for this 1978 sample, and the two are compared. We also compared the variables that we found predicted enrollment with those that predict persistence.

RESULTS

This section contains the study's findings. It starts with a discussion of the 1979 Retention Sample--first, we describe its representativeness, then present the responses of CUNY Persisters and Nonpersisters on the Retention Questionnaire variables. From this, we obtain a comprehensive picture of what CUNY community college students do and believe is of importance in the continuance of their education.

Before we present the discriminant analyses, based on the variables that distinguish the 1979 CUNY Persister from the CUNY Nonpersister, the 1978 Sample is examined. For it too we include data pertaining to its representativeness (and comparability to the 1979 group), and summarize the variables on which 1978 CUNY Persisters and Nonpersisters differed.

The Results conclude with the data that answer the questions of how accurately can we predict student persistence in CUNY Community College career programs and how generalizable is the prediction.

REPRESENTATIVENESS OF THE 1979 SAMPLE

Earlier in this report we described how the 1979 Enrollment Sample (2151 respondents) differed from the random sample of 7,000 Enrollment Questionnaire recipients. (See Figure 1.) Here, we will look at the

[1]The Statistical Program for the Social Sciences (SPSS) was selected for use since it provides the best combination of flexibility in analysis and clarity of output format.

differences between the 1979 Retention Sample and the 1979 Enrollment Sample, based on the data they have in common: variables from the CUNY application form and the Enrollment Questionnaire. In order to ascertain the representativeness of the Retention Sample, we will use all 519 respondents--irrespective of whether they are CUNY-NonCUNY Persisters or Nonpersisters--because these same types of subgroups also constitute the Enrollment Sample.

The Retention Sample was substantially different from the Enrollment Sample from which it derived.[1] Specifically, the 1979 Retention Sample was more likely to:

1. be female. About two-thirds (65.7%) of the Retention Sample (R) was female in contrast to 58.5 percent of the Enrollment Sample (E). They did not differ significantly either in marital status, number of financial dependents, or age.

2. have enrolled in college (R = 92.7%; E = 85.4%), and specifically in the CUNY Community Colleges (R = 79.6%; E = 73.5%). There was no difference in the proportion allocated to the college curriculum of their first choice.

3. have enrolled in a program of study related to their career goal (R = 82.1%; E = 73.7%).

4. be better students based on their high school average:

   - in English--fewer averaged less than 65 (R = 3.1%; E = 4.5%) and more averaged 85 or better (R = 13.3%; E = 7.8%);
   - in math (85 or better, R = 8.7%; E = 5.1%); and
   - in science (85 or better, R = 11.4%; E = 7.0%).

   However, the two samples did not differ in the proportion who reported that they had to take or expected to take remedial courses in college.

5. have somewhat higher educational aspirations: 31.6 percent of the Retention Sample expected to complete a 2-year degree (E = 30.1%); 36.8 percent desired a 4-year degree (E = 31.4%); and 18.9 percent wanted to complete a master's degree (E = 15.3%). Their greater academic orientation also showed in their greater likelihood to have taken the PSAT/SAT's in high school (R = 61.8%; E = 50.4%).

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[1] All reported differences were significant at or better than the .05 level of confidence.

6. differ with respect to what influenced their college-choice decision. Proportionately fewer of the Retention Sample were influenced by high school teachers (R = 43.4%; E = 48.6%) or by the media (R = 2.7%; E = 3.5%), and more were influenced by the schools' reputation (R = 55.0%; E = 49.8%) and by their own interests (R = 90.6%; E = 85.7%).

7. have more seriously considered, as an alternative to enrolling in a CUNY two-year college career program, going to a four-year college (R = 39.7%; E = 35.0%), or taking time off and not going to school or to work (R = 6.4%; E = 4.7%). A significantly greater proportion of the Enrollment Sample seriously considered a trade or technical school instead of a CUNY college (R = 12.7%; E = 17.6%) or going to work full-time (R = 30.4%; E = 33.1%).

8. be somewhat more satisfied with their general situation at the time they completed the Enrollment Questionnaire--midway into their freshman year (R = 65.1%; E = 57.0%). The samples also differed in how satisfied they were with the decision to continue schooling after high school and with their career goals.

9. believe in the marketplace value of education. In general, the Retention Sample was more likely to agree that good jobs and high salaries were more likely with higher academic degrees.

10. differ in their beliefs and expectations about college. For example, a smaller proportion of the Retention Sample felt they could attend school and work enough to support themselves and their dependents; more of the Retention Sample felt their college was comprised of caring staff and faculty (R = 89.7%; E 82.0%).

In summary, the Retention Sample (composed of respondents to the Retention Questionnaire) differed from the Enrollment Sample (which also includes nonrespondents to this instrument) from which it was drawn on many important dimensions. Females were overrepresented among the Retention Sample as were higher ability and high-aspiring students. While these characteristics generally differentiate questionnaire respondents from nonrespondents, they--and the other differences detailed above--seriously limit the generalizability of the results. Thus, while the discriminant analyses presented at the conclusion of this section, which are based on the 1979 CUNY Retention Sample, correctly classify a very great number of students comprising that sample, they may not accurately predict persistence for the Fall 1979 CUNY Community College allocant universe. Moreover, the non-representativeness of the 1979 Sample may also account for the less accurate level of accuracy we obtained when the significant variables were used to predict persistence for the 1978 CUNY Retention Sample.

1979 PERSISTERS-NONPERSISTERS

What follows is a detailed analysis of 1979 Persister-Nonpersister differences, variable-by-variable.[1] Since the intent was to isolate factors that correlate with retention in CUNY Community College career programs, we used the limited 1979 CUNY Retention Sample. The following comparisons, from which NonCUNY students have been eliminated, are based on the responses of 383 CUNY Community College Persisters and 29 CUNY Community College Nonpersisters--respondents to the Retention Questionnaire.[2]

Demographic Variables

Are CUNY Persisters distinguishable from Nonpersisters on the basis of age, sex, marital status, or related descriptive characteristics?

Sex and Marital Status. There was no statistically significant difference in the composition of the Persister (P) and Nonpersister (NP) groups by sex (% female, P = 64.6; NP = 65.9), marital status (% not married, P = 87.4; NP = 85.2), or in the proportion without children (P = 85.3%; NP = 88.9%).

Age. The median age of the two groups in 1981 was the same (P = 20.6 years; NP = 21.5), but a larger proportion of Nonpersisters tended to be in the older age ranges. This small and nonsignificant difference results from the fact that a somewhat larger proportion of Persisters enrolled in college in the semester immediately after high school graduation (P = 72.1%; NP = 67.9%).

Living arrangements. During the 1980-81 school year, most Persisters and Nonpersisters lived at home with their parents (P = 72.8%; NP = 68.3%), a few lived with other relatives (P = 5.2%; NP = 4.9%), including spouses and children (P = 11.4%; NP = 9.8%). Proportionately more Nonpersisters lived alone or with friends. While these differences were not statistically

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[1] These groups' scores on selected variables from the CUNY application form and Enrollment Questionnaire are presented in Appendix B. Several of the variables on which they differed significantly were used in some of the discriminant analyses.

[2] See Figure 1. In addition to these 412 respondents, there were 99 others to the Retention Questionnaire: 84 who enrolled in colleges other than the CUNY two-year one to which they had been allocated and who were still in attendance; plus 15 more who had dropped out or stopped out by the late Spring of 1981.

significant, the two groups were distinguished by what they believed their living arrangements would have been had they not been in school: Persisters believed it was "somewhat unlikely" that they would have the same arrangements, while Nonpersisters felt it was "somewhat likely" that they would have the same living style.

With whom they lived notwithstanding, there was no significant difference in travel time from home to college: one-third of each group made the one-way trip in 30 minutes or less, with most of the remainder spending between one-half to one hour (P = 42.3%; NP = 30.8%) or one to one and one-half hours traveling (P = 18.0%; NP = 23.1%).

College preference. Since most CUNY applicants are, in fact, allocated to their first-choice CUNY college, we expected to find high and equivalent proportions of Persisters and Nonpersisters enrolled in their first-choice institution (P = 71.7%; NP = 75.0%). However, there was a significant difference in the specific schools preferred by these groups: Persisters preferred, in decreasing order, Queensborough, New York City Technical College, Kingsborough, LaGuardia, and Borough of Manhattan Community Colleges. These accounted for the choices of about 66 percent of this group. Nonpersisters opted for, in order: LaGuardia; Queensborough and New York City Technical College (42.5%).

Relatedly, there was also a significant difference in the specific institutions in which Persisters and Nonpersisters enrolled. Half of the Persisters enrolled in Queensborough, New York City Technical College, and Kingsborough (51.2%), while approximately two-thirds of the Nonpersisters enrolled in LaGuardia and New York City Technical College (64.3%).

Educational Aspirations. Persisters and Nonpersisters are differentiable in terms of their educational aspirations, as represented by the highest level of education or highest degree they hope to attain. As can be expected on the basis of Persisters' greater academic orientation referred to above, proportionately more Persisters desired more advanced degrees: some college or trade school, no degree, P = 4.9%, NP = 22.2%; 2-year degree, P = 20.9%, NP = 33.3%; 4-year degree, P = 34.8%, NP = 25.9%; master's degree, P = 29.8%, NP = 14.8%; and doctorate or professional degree, P = 8.7%, NP = 3.7%.

Basic demographic variables do not seem to correlate with persistence in CUNY Community College career programs, but age and travel time to

school deserve additional study. Because of the composition of the respondent group (predominately female), one could hypothesize that sex is also a related factor.

High educational aspirations characterize Persisters and there is some indication that one's choice of CUNY college, or the fact that one is likely to be allocated to it and to enroll in it, seems to distinguish between the groups. A detailed analysis of persistence, college by college, would help explain this finding.

Financial Aid and Work Variables

The Enrollment study suggested that finances may have been an underlying factor in the decision to enroll in college and in the choice of particular kinds of institutions.[1] Specifically, we found that not only did students who dropped out during the first year average more hours a week working than did students who remained in school (not a surprising outcome), but that dropouts, in significant contrast, initially believed that they would be able to work enough to support themselves while attending college. In other words, they felt they could manage both to work and go to school. How do finances relate to persistence in the present study?

The Retention Questionnaire included several items related to employment and financial aid; these are summarized in Table 1 on the following page. Despite some seemingly large arithmetic differences in percentages, none was statistically significant. Financial aid, other income, obligations, and selected employment-related variables do not differentiate Persisters from Nonpersisters.

Nonetheless, the data is interesting. To begin with, most respondents received some sort, typically a combination, of financial aid (P = 79.3%; NP = 91.3%), although this was not their major source of support. Nor was earnings from a job. The primary support for the largest proportion of both Persisters and Nonpersisters come from relatives.

Approximately 60 percent of the respondents worked during the school year, and of those, most worked at a paid job (P = 68.5%; NP = 64.0%). While there was no significant difference in the mean number of hours a week

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[1] Heller, Wheeler, and Geringer, op. cit.

TABLE 1

A COMPARISON OF 1979 PERSISTERS (P) AND NONPERSISTERS (NP) ON SELECTED FINANCIAL AND WORK VARIABLES

(All Figures in Percentages)

VARIABLES:	P (N = 383)	NP (N = 29)	Diff.[a] (P-NP)
No Financial Aid	20.7	8.7	+12.0
Received Financial Aid[b]	79.3	91.3	-12.0
TAP alone	6.9	8.7	- 1.8
BEOG alone	4.8	8.7	- 3.9
TAP + BEOG	39.9	52.2	-12.3
Loans	4.0	4.3	- 0.3
PRIMARY SOURCE OF SUPPORT:			
Earnings (self)	23.0	20.0	+ 3.0
Savings (self)	1.0	4.0	- 3.0
Financial Aid	14.9	16.0	- 1.1
Relatives	42.4	36.0	+ 6.4
NUMBER OF FINANCIAL DEPENDENTS:			
None	54.9	37.0	+17.9
One	27.7	51.9	-24.2
Two to Three	7.1	5.4	+ 1.7
Four or More	10.3	3.7	+ 6.6
WORKED DURING 1980-81	62.7	61.5	+ 1.2
AVERAGE NUMBER OF HOURS WORKED:			
14 or fewer	8.9	0	+ 8.9
15 - 25	29.2	26.9	+ 2.3
26 - 35	11.8	11.4	+ 0.4
36 or more hours	10.0	7.7	+ 2.3
WORKED AT A PAID JOB	68.5	64.0	+ 4.5

[a]None of the Chi-Square differences was significant.

[b]Doesn't equal 100%; not all combinations are shown.

worked, there was a tendency for a larger proportion of Nonpersisters to work more hours, perhaps because proportionately more of them tended to support at least one dependent (see Table 1).

Respondents who worked during 1980-81 were asked six questions about their job. Responses for Persisters and Nonpersisters are summarized in Table 2 below; average scores on a 4-point scale are presented, where 1.0 = "mostly false", and 4.0 = "mostly true". With one exception, the groups were

TABLE 2

1979 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF THE LIKELIHOOD THAT SELECT VARIABLES CHARACTERIZE THEIR JOBS

VARIABLES:	P (N=245)	NP (N=15)	Diff.[b] (P-NP)
The job was related to my course work	2.17	2.00	+0.17
The job will help me reach my career goals	2.23	1.86	+0.37
I was satisfied with the job	2.80	3.07	-0.27
I worked mostly for money	3.30	3.27	+0.03
I worked mostly for the fringe benefits	1.71	2.14	-0.43
I worked mostly because I enjoy working	2.80	2.79	+0.01

[a]Scale: 1.0 = Mostly False; 2.0 = Somewhat False; 3.0 = Somewhat True; 4.0 = Mostly True. The higher the mean score, the more likely the statement was True of the job.

[b]t-test significance $\leq .01(*)$, $\leq .05(**)$, $\leq .10(\Delta)$.

not different: their jobs were not well-related to their course work, nor were they particularly productive in furthering their career goals. Both Persisters and Nonpersisters agreed that they were somewhat satisfied with their jobs, and both worked generally to earn money to a slightly greater extent than merely for enjoyment. There was a greater tendency (.11 level of confidence) for Nonpersisters to work because of fringe benefits, perhaps because of their obligations to their dependents (see Table 1).

Enrollment Decision Variables

On the supposition that, other than educational aspirations, Persisters and Nonpersisters would report different reasons for having enrolled in CUNY two-year colleges, the Retention Questionnaire listed 16 reasons related to the decision to go college, culled from the literature. Respondents were asked to rate each reason on a four-point scale of importance to them: 1.0 =

of no importance, 4.0 = of great importance. (We also asked them to rate the same set of 16 items in terms of how important each was in their decision to continue in school.) Table 3 on the following page presents the mean scores for the Persister and the Nonpersister groups on each item.

Persisters and Nonpersisters started college for similar reasons. On no item did the differences between groups approach statistical significance. In other words, Persisters and Nonpersisters attached similar degrees of importance to each of 16 reasons that relate to the decision to enroll in college. Generally, however, Persisters tended to give the items more importance than did the Nonpersisters, rating 11 of the 16 higher (but not significantly so).

Looking at the items in terms of their relative importance to one another, the following picture emerges. Several were rated by both groups as being of from "moderate" to "great" importance. These were: "more education would help me get a better paying job"; "college was a way of preparing myself for a better life"; and, "more education was necessary for the career I wanted". Of least importance to both groups (rated less than of "some importance") was: "business, church, or other community leaders thought I was good college material"; "there was nothing else to do if I didn't go" to college ; "most of my friends were in or were going to go to college"; "more education would help me be a better spouse"; and, "the people I most respect have college degrees".

These responses illustrate that allocants who enroll in a CUNY Community College career program, irrespective of whether or not they persist, are very career-minded and committed to the belief that a college education is necessary to the achievement of their career goals and to a better and more lucrative way of life.

Given the same list and asked to rate the 16 items for importance in their decision to continue in college (see Table 4 on page 22), similar results obtained, but with a general overall increase in importance. That is, the listed reasons tended to be rated higher, indicating that respondents believed them to be more important in the decision to continue in school than they were in the decision to enroll. However, the relative importance of the items did not change. The same ones were rated of high and low importance in the decision to continue as we saw in the decision to enroll in college.

Of perhaps greater interest, on all but one variable, the ratings of

TABLE 3

1979 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF FACTORS IMPORTANT IN THE DECISION TO ENROLL IN COLLEGE

VARIABLES:	P (N=383)	NP (N=29)	Diff.[b] (N-NP)
My teachers thought I was good college material	2.10	2.33	-0.23
More education was necessary for the career I wanted	3.41	3.29	+0.12
More education would help me be a better spouse	1.94	1.82	+0.12
Business, church, or other community leaders thought I was good college material	1.69	1.86	-0.17
My parents wanted me to have a higher education	3.02	3.11	-0.09
I had a compelling interest in one area of specialty	3.07	3.08	-0.01
The people I most respect have college degrees	1.98	1.89	+0.09
I felt that the contacts I would make in college would help in my career	2.51	2.44	+0.07
I hoped to make many new friends in college	2.24	2.43	-0.19
More education would help me get a better paying job	3.66	3.59	+0.07
I wanted to improve my qualifications for becoming a leader in community affairs	2.00	1.68	+0.32
Most of my friends were in or were going to go to college	1.91	1.79	+0.12
It was always expected that I would go to college	2.49	2.32	+0.17
There was nothing else to do if I didn't go	1.81	1.78	+0.03
I wanted to learn more about certain subjects	3.07	3.04	+0.03
College was a way of preparing myself for a better life	3.49	3.46	+0.03

[a]Scale: 1.0 = of No importance; 2.0 = of Some importance; 3.0 = of Moderate importance; 4.0 = of Great importance.

[b]t-test significance $\leq .01(*)$ $\leq .05(**)$, $\leq .10(\Delta)$.

TABLE 4

1979 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF FACTORS IMPORTANT IN THE DECISION TO CONTINUE IN COLLEGE

VARIABLES:	P (N=383)	NP (N=29)	Diff.[b] (P-NP)
My teachers though I was good college material	2.32	2.65	-0.33
More education was necessary for the career I wanted	3.59	3.33	+0.26
More education would help me be a better spouse	2.07	1.96	+0.11
Business, church, or other community leaders thought I was good college material	1.77	1.79	-0.02
My parents wanted me to have a higher education	2.91	3.04	-0.13
I had a compelling interest in one area of of specialty	3.24	3.08	+0.16
The people I most respect have college degrees	2.13	1.79	+0.34
I felt that the contacts I would make in college would help in my career	2.69	2.26	+0.43
I hoped to make many new friends in college	2.37	2.29	+0.08
More education would me get a better paying job	3.73	3.42	+0.31**
I wanted to improve my qualifications for becoming a leader in community affairs	2.1[illegible]	1.83	+0.28
Most of my friends were in or were going to college	1.96	1.71	+0.25
It was always expected that I would go to college	2.46	2.22	+0.24
There was nothing else to do if I didn't go	1.89	2.00	-0.11
I wanted to learn more about certain subjects	3.30	3.17	+0.13
College was a way of preparing myself for a better life	3.63	3.54	+0.09

[a]Scale: 1.0 = of no importance; 2.0 = of some importance; 3.0 = of moderate importance; 4.0 = of great importance.

[b]t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

Persisters did not differ significantly from those of Nonpersisters: Persisters gave a higher rating of importance to the statement that "more education would help me get a better paying job" (although Nonpersisters also rated this very high), suggesting stronger faith in the marketplace value of a college education.

In summary, reasons for enrolling in college (or for that matter, continuing in college) do not differentiate Persisters from Nonpersisters. Other explanations must be advanced to account for the decision to remain in college. The research literature points to students' experiences in college as critical, and to differences in the services they perceive as available to them. We will now turn to an examination of these types of factors.

General Satisfaction Variables

In addition to specific experiences that might distinguish the group that persisted in CUNY Community College career programs from those who did not, the Questionnaire contained some more general questions.

First, respondents were asked what would they do if they were just now (i.e., at the time the Retention Questionnaire was administered) finishing high school and making a choice about college. The responses of Persisters and Nonpersisters were significantly different: far fewer Nonpersisters would opt to enroll in the same college they did (P = 43.4%; NP = 21.4%), although about one-third would go to (another) college. Furthermore, proportionately more Nonpersisters would postpone college (P = 18.2%; NP = 34.7%), choosing instead to work for a while or just take time off. (A significantly larger proportion of Nonpersisters was also "undecided".)

In terms of more specific variables, the two groups were more alike than different. Table 5, on the following page, summarizes their degree of satisfaction on eight items. Mean scores on a four-point scale are presented, where 1.0 = "very dissatisfied" and 4.0 = "very satisfied". Persisters and Nonpersisters were equally "somewhat satisfied" with the quality of the education they received in college, and with their decision to go to college (both rated this item very highly), their career goals, and with the relationship between their college major and their career goals. Of interest is that both groups also indicated that they are "somewhat satisfied" that they will finish all their education, and that they are making acceptable progress toward it.

TABLE 5

1979 PERSISTERS' (P) AND NONPERSISTERS' (NP) DEGREE[a] OF SATISFACTION WITH SCHOOLING AND CAREER GOALS

VARIABLES:	P (N=383)	NP (N=29)	Diff.[b] (P-NP)
The college I attended this year	3.04	2.71	+0.33Δ
The curriculum (major) I chose	3.36	3.05	+0.31Δ
The quality of the education I received	3.14	2.96	+0.18
My decision to go to college	3.59	3.43	+0.16
The progress I'm making	3.18	2.95	+0.23
My current career goals	3.40	3.43	-0.03
The relationship between my major and my career goals	3.29	3.25	+0.04
The likelihood that I will finish all my education	3.40	3.20	+0.20

[a]Scale: 1.0 = Very Dissatisfied; 2.0 = Somewhat Dissatisfied; 3.0 = Somewhat Satisfied; 4.0 = Very Satisfied.

[b]t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

There was a tendency (at the .10 level of confidence) for more Persisters to be satisfied with the college they attended and with their chosen curriculum (see Table 5).[1] This is apparent in their plans for the next academic year. When asked whether they intended to go back to the same college in September 1981 (the semester following the Questionnaire administration), the two groups differed markedly: two-thirds (66.3%) of the Persisters said they were definitely planning to return to the same school, in contrast to only 11.5 percent of the Nonpersisters. Nonpersisters were more likely to indicate "Definitely Not" (42.3%) and "Probably Not" (7.7%), while proportionately more Persisters said "Maybe Yes" (9.7%) or that they will go to "Another School" (15.0%).

College Experience Variables

Questionnaire respondents were asked to rate another set of 29 variables pertaining to their experiences in college, using a four-point scale (where 1.0 = "mostly false"; 4.0 = "mostly true"). The mean scores of

[1]Persisters' and Nonpersisters' satisfaction with college, major, or careers is not related to whether or not they spoke with a high school counselor or teacher prior to making these decisions. Statistically equal, and very small, proportions of each group did so.

Persisters and Nonpersisters on each item are summarized in Table 6 (page 26, following). Once again, the overall pattern is one of no difference between the groups: on only two items did the differences reach statistical significance (at the level .05). These were: "I took part in at least one organized activity at college", and "Overall, I feel comfortable in this school." Both were more "true" of Persisters than of Nonpersisters. Persisters also tended to rate the following three items as more "true": "There is a lounge where students gather during their free time" (.07 level of confidence), "My professors explain the course requirements at the beginning of the semester", and "I've been able to make friends here" (both at the .12 level of confidence).

Based on the research literature, most of the variables in this set have previously been positively related to retention. Our findings do not confirm this, but we do find that more than half of the items tended to be rated "more true" by Persisters (although not significantly so). Why CUNY Community College students differ from other student populations on these variables is not clear.

Quality of Services Variables

Included in the Retention Questionnaire were 22 items that students were asked to rate (1.0 = poor, 2.0 = average, 3.0 = good, and 4.0 = excellent). These items, presented in Table 7 (page 27) with mean scores for the Persister and Nonpersister groups, relate to the quality of services offered by the college in which respondents were or had been enrolled.

There was a significant difference between the groups on two items. One concerned the "opportunities to meet with my instructors", and this was rated more highly by Persisters; this accords with the literature which suggests that interaction with instructional staff is a key element in persistence in college. Further support for the critical nature of this variable comes from the result to a related item on which Persisters tended (P = .10) to rate their instructors better on knowledge and teaching skills".

The other variable on which the two groups differed significantly relates to whether the school library met their interests; but here, the outcomes do not match the direction of the findings of other researchers. We find that Nonpersisters rate the school library better than do Persisters. (The quality of the library staff tended to also be rated higher by Nonpersisters--see Table 7.)

TABLE 6

1979 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF THE LIKELIHOOD OF HAVING SPECIFIC EXPERIENCES

VARIABLES:	P (N=383)	NP (N=29)	Diff.[b] (P-NP)
The college provides orientation for entering students	3.54	3.46	+0.08
I took part in the college's orientation program	2.94	3.12	-0.20
The college offers special instruction in study habits ("how to study")	2.82	2.83	-0.01
I took part in the college's program to improve my study habits	2.01	2.25	-0.24
My college emphasizes student counseling and advisory services	2.85	2.84	+0.01
My college requires me to see a counselor or advisor periodically during the school year	2.56	2.72	-0.16
My college assigns me a specific advisor	2.73	2.80	-0.07
My advisor/counselor helps with personal problems	2.12	2.46	-0.34
The professors present material clearly and unambiguously	2.97	2.92	+0.05
My professors' class presentations are interesting	2.98	2.84	+0.14
My professors set goals for the class at the beginning of each semester	3.20	3.08	+0.12
My professors explain the course requirements at the beginning of the semester	3.61	3.40	+0.21
In addition to required courses, in my first year I was able to take other interesting courses	2.68	2.44	+0.24
There are people to help me select the courses I want or need	2.95	2.84	+0.11
My professors emphasize intellectual and cultural pursuits outside the classroom	2.48	2.44	+0.04
The chairperson of my department (program) has adequate office hours for students	2.60	2.67	-0.07
I've met and talked to the chairperson of my department (program)	2.25	2.16	+0.09
I take part in at least one organized activity at college (clubs, sports, newspaper, etc.)	2.04	1.48	+0.56**
In general, my classmates are friendly	3.37	3.42	-0.05
I consider my classmates as peers	2.99	3.08	-0.09
My classmates and I have the same degree of determination about finishing college	2.83	2.64	+0.19
My classmates and I have similar goals in life	2.63	2.64	-0.01
In addition to going to classes, most of my classmates have jobs	3.19	3.17	+0.02
I've been able to make friends here	3.48	3.24	+0.24
There is a lounge where students gather during their free time	3.62	3.36	+0.26Δ
Overall, I feel comfortable in this school	3.25	2.84	+0.41**
My college has strict rules about cutting classes	2.68	2.79	-0.11
At or nearby the college is a well-stocked bookstore	3.13	3.12	+0.01
The college offers students a variety of social activities	3.02	3.84	-0.82

[a]Scale: 1.0 = Mostly False; 2.0 = Somewhat False; 3.0 = Somewhat True; 4.0 = Mostly True. The higher the mean score, the more likely the statement is True.

[b]t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

TABLE 7

1979 PERSISTERS' (P) AND NONPERSISTERS' (NP) MEAN RATINGS[a] OF THE QUALITY OF COLLEGE SERVICES

VARIABLES:	P (N=383)	NP (N=29)	Diff.[b] (P-NP)
The services the admissions office provides are	2.37	2.48	-0.11
In general, the size of my classes is	2.60	2.48	+0.28
The variety in sources of financial aid available to students is	2.59	2.56	+0.03
The effort the college makes to place graduates in jobs related to their career is	2.39	2.63	-0.24
The number of courses available in my major field of study is	2.93	2.64	+0.29
The kind of facilities (labs, equipment, etc.) available to students in my major is	2.79	2.71	+0.08
In terms of my interests, the school library is	2.89	3.26	-0.37**
The library staff provides services that are	2.80	3.08	-0.28
The conditions for using the libarary to study are	2.94	3.17	-0.23
The variety of student activities are	2.62	2.65	-0.03
The quality of the student activities are	2.45	2.61	-0.16
The availability of advisors to work with students on educational problems is	2.40	2.40	0
The availability of advisors to work with students on career-related decisions is	2.39	2.61	-0.22
The advice or recommendations I get from advisors is	2.47	2.54	-0.07
The level of teaching skills of my instructors is generally	2.94	2.67	+0.27
The knowledge my instructors have about their subject matter is	3.14	2.88	+0.26Δ
When it comes to giving me help with a course-related problem, my instructors are	2.83	2.80	+0.03
The opportunities to meet with my instructors are	2.80	2.40	+0.40**
Looking back, my decision to attend this school was	2.86	2.56	+0.30
The college's system for letting students contest their grades is	2.42	2.22	+0.20
The chances students have to play an active role in setting school policy are	2.36	2.26	+0.10
The attention given to student grievances is	2.18	2.26	-0.08

[a] Scale: Poor = 1.0; Average = 2.0; Good = 3.0; Excellent = 4.0. The higher the mean score, the better were the services.

[b] t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

Overall, about half of the items were rated higher by Persisters (although not necessarily significantly so). All are rated somewhat better than "average" by both groups. The best for Persisters, relatively speaking, is their "instructors' knowledge about their subject matter"; for Nonpersisters, it is the school library. Rated least highly by Persisters was the "attention given to student grievances"; Nonpersisters rated relatively lowest the "college's system for letting students contest their grades".

Reasons for Leaving School

In this section, which completes this part of the Results, respondents provided additional clues about persistence in response to direct questions about reasons for stopping out or dropping out of college.

The Retention Questionnaire listed 33 reasons associated with leaving college and asked respondents whether each reason was "mostly false" for them (1.0), "somewhat false" (2.0), "somewhat true" (3.0), or "mostly true" (4.0). The items, and the mean scores for selected Persisters and Nonpersisters, are summarized in Table 8 on page 29.

Respondents were asked to complete this question only if they had either changed colleges (i.e., transferred from one to another school) or dropped out of college, permanently or temporarily. While there was, of course, a highly significant difference ($p = .0000$) in the proportion of Persisters and Nonpersisters who dropped out, there was no difference in the proportions of respondents who indicated they changed schools. However, not all Nonpersisters answered this question (69% did so--the remainder did not, presumably largely because this was the last question on the lengthy instrument). About one-third (32.6%) of the Persisters also responded.[1] (We will discuss this and other sampling problems at the conclusion of the Results.)

In examining the scores in Table 8, the first thing of note is that two-thirds of the variables were "rated more" true by Nonpersisters (note the "-" signs in the Difference column in Table 8). This thus provides some validation that these items represent the reasons students do not continue in

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[1] We are not quite certain how to account for the Persisters who responded (or for that matter, Nonpersisters who did not). As one explanation, perhaps Persisters interpreted the question to mean "which of these would be true <u>if</u> you were to stop our or drop out of college?"

TABLE 8

1979 PERSISTERS' (N) AND NONPERSISTERS' (NP) MEAN SCORES[a] ON REASONS FOR TRANSFERRING OR DROPPING OUT OF COLLEGE

VARIABLES:	P (N=264)	NP (N=9)	Diff.[b] (N-PN)
College was too expensive	1.78	2.75	-0.97*
College was too difficult	1.71	1.80	-0.09
College was too easy	1.71	1.75	-0.04
The college didn't offer a program of interest to me	1.89	1.60	+0.29
I didn't like the instructors	1.76	1.65	+0.10
I didn't like the other students	1.59	1.50	+0.09
I didn't like the geographic location	1.97	1.80	+0.17
I became too ill or disabled to continue	1.23	1.63	-0.40**
Because of illness in my family	1.25	1.25	0
Because of personal financial reasons	1.81	2.50	-0.69*
Because of family financial reasons	1.67	2.15	-0.48Δ
I wasn't really ready for college	1.64	1.76	-0.12
I was needed at home	1.30	1.15	+0.15
I was getting married	1.06	1.35	-0.29*
I wanted to raise a family	1.22	1.25	-0.03
I wanted to work full time	1.86	2.80	-0.94*
I was lonely and unhappy at college	1.54	2.05	-0.51**
I had marital or other family problems	1.50	1.35	+0.15
I was discouraged by my grades or progress	1.94	2.14	-0.20
I just lost interest in school	1.62	2.25	-0.63*
I was put on probation because of grades	1.57	2.14	-0.57**
I was dismissed because of grades	1.33	1.76	-0.43**
I was asked to leave for reasons other than grades	1.08	1.10	-0.02
The job I wanted didn't require college	1.15	1.40	-0.25Δ
My friends go to another school	1.25	1.20	+0.05
The college was too small	1.35	1.25	+0.10
The college was too large and impersonal	1.36	1.25	+0.11
I didn't like the social life at college	1.69	1.80	-0.11
The college didn't offer adequate financial aid	1.50	1.60	-0.10
The policies of the college were too childish	1.52	1.30	+0.22
The academic standards were too high	1.41	1.70	-0.29
The academic standards were too low	1.55	1.50	+0.05
I wasn't getting anything out of college	1.62	2.11	-0.49Δ

[a] Scale: 1.0 = Mostly False; 2.0 = Somewhat False; 3.0 = Somewhat True; 4.0 = Mostly True. The higher the mean score, the more likely the item is True of the respondent.

[b] t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

college. Note, however, that on only nine items are the differences in Persisters' and Nonpersisters' mean scores significant at or better than the .05 level of confidence. Paraphrased, the differentiating items are: college was too expensive; personal financial reasons; marriage; wanted full-time work; lonely and unhappy at college; put on probation because of grades; dismissed because of grades; illness or disability; and lost interest in school. All were more true of Nonpersisters. (Approaching statistical significance were: family financial reasons ($p = .08$); job didn't require college ($p = .06$); too high academic standards ($p = .11$); and, I wasn't getting anything out of college ($p = .06$). Each of these variables was also rated more true by Nonpersisters.)

The distinguishing variables can be easily classified: most relate to finances either directly or indirectly (marriage, full-time work); another few concern academic performance (grades and standards). Factors related to school policy or regulations, or to social life did not differentiate between the Persisters and Nonpersisters who responded to this question.

Looking at the items in relation to one another, Nonpersisters indicated that the expense of college and their desire to work full-time were major factors in their decision to leave school; for Persisters who responded, it was discouragement with grades and the nonavailability of a progam of interest. Being asked to leave for reasons other than grades or because of family illness or need were least likely to be true of Nonpersisters.

Overall, the Retention Questionnaire generally did not result in many nor in large or dramatic differences between CUNY Community College career program Persisters and Nonpersisters as these have been defined. Of the approximately 140 "new" variables, Persisters and Nonpersisters were or tended to be significantly different on only 27 of them. (They were different on 19 "old" variables as well; see Appendix B). The Enrollment Study, which yielded a total of 179+ variables, discriminated among four analytic groups on 78 variables.

All other things being equal, the number of critical variables is less important than their strength in classifying students into probable Persister-Nonpersister groups. As we will see in the concluding portion of the Results section, the factors we identified do not do this at a level of accuracy better than chance. The reasons have more to do with how the Persister-Nonpersister groups were sampled and defined than with the particular variables selected for study.

REPRESENTATIVENESS OF THE 1978 SAMPLE

In this portion of the Results we first examine the representativeness of the 1978 Retention Sample, comparing it on a few select variables with the 4,000 Random Sample of which it is a part. Then, we will compare the 1978 and 1979 Retention Samples on the variables they have in common. This is followed by a presentation of the 1978 CUNY Retention Sample respondents' scores on the Retention Questionnaire items. This again provides an overview of the activities and beliefs of a large number of students who enrolled in CUNY Community College career programs and, at the same time, enables us to contrast the 1978 and 1979 CUNY Retention Samples--a contrast necessary to appreciate the stability (or lack of it) of the retention predictor variables.

As was illustrated in Figure 2, page 8, the 1978 Retention Sample is comprised of 439 respondents to the Retention Questionnaire. They represent 13.4 percent of the respondents who presumably received the survey and who were selected at random from all CUNY applicants allocated to two-year career programs for the Fall of 1978. (As we will detail below, the 439 Questionnaire respondents included 141 people who were not classified as CUNY Community College students or as Persisters or Nonpersisters and, therefore, who are not part of the 1978 CUNY Retention Sample.)

Because comparisons between the 439 respondents and the Random Sample of 4,000 are limited to select data from the CUNY application form, there are few common variables to discuss, and no qualitative ones at all. (See Figure 2, data sources.)

In contrasting the sample of 439 with the larger Random Sample, it is important to keep in mind that the former group responded to the Retention Questionnaire, while the latter is composed of people who did not; this in itself can be taken as evidence that they are not equivalent groups. There was one other highly significant statistical difference between them: their composition by sex. About 70 percent (70.2%) of the Retention Sample was female, in marked differentiation to the sex distribution within the Random Sample--58.1 percent female.

Although we do not have the specific data in support, the sex difference suggests other differences as well: in marital status, in children, and perhaps of most importance, in college major and related aspects of their educational activities.

However, on all other variables for which comparable data exists, the 1978 Retention Sample and the 1978 Random Sample were more alike than different. There was no difference in the number of high school credits they took in English, foreign language, math, or science, and no difference in the high school academic averages based on these credits. Thus, in terms of ability as measured by scores in academic subjects in high school, the 1978 Random and the 1978 Retention Samples were similar to one another. Their scores follow, with the Retention Sample's scores given first: English = 75.8%, 74.1%; foreign language = 76.4%, 74.2%; math = 71.6%, 70.2%; and science = 73.9%, 72.9%. Similarly, their overall college admission average score is not statistically different: 74.8%; 73.3%.

Based on these limited data, it is not possible to definitively answer the question of whether the 1978 Retention Sample is representative of the 1978 Random Sample or of the universe of people allocated to CUNY Community Colleges for the Fall 1978. They are alike in academic ability--and thus one could suppose they are also alike in variables related to ability (such as need for remediation in college)--but are clearly different in sex composition and the related variables, that correlate with sex, as well as on other dimensions that generally separate questionnaire respondents from nonrespondents.

Also of import to the design of this study is the question of the similarity of the 1978 and 1979 Retention Samples. Here too the data on which they can be compared is limited, and the comparisons are equivocal: the 1978 group is again more predominantly female; the two samples are alike in ability (using high school averages in select academic subjects).

1978 PERSISTERS-NONPERSISTERS

With the question of representativeness remaining unanswered, we will nevertheless turn to an examination of the responses of the 1978 sample to the Retention Questionnaire, in an attempt to shed additional light on the experiences of another group of CUNY students and to develop hypotheses that might form the basis of future research studies.

As we did for the 1979 Sample, the 1978 CUNY Retention Sample is restricted to CUNY Community College students. A total of 141 respondents to the Retention Questionniare was eliminated from the data presented below; they were either classified as NonCUNY Community College Persisters or Nonpersisters, or as status "unknown" on the basis of their

Questionnaire responses. The specific Ns for each group are shown in Figure 2, page 8.

Below, we present comparisons between 230 CUNY (community college) Persisters (P) and 68 CUNY (community college) Nonpersisters (NP). The Retention Questionnaire variables are grouped like they were in the comparison of the 1979 CUNY Persisters-Nonpersisters above.

Demographic Variables

Sex, and marital status. There was no statistically significant difference in the proportion of Persisters or Nonpersisters who are female (P = 71.3%; NP = 70.6%). There was, however, a difference (p = .03) in the proportion who were married (P = 12.8%; NP = 22.7%): proportionately more Nonpersisters were married by the Spring of 1981, suggesting a possible reason for their no longer being in school. Marital status nonwithstanding, most respondents in both groups had no children (P = 78.7%; NP = 80.3%). Note that more of the 1978 sample than of the comparable 1979 group was likely to be married--possibly because they were a year older.

Age. Similarly, 1978 CUNY Persisters and Nonpersisters were the same median age, and equal proportions of both groups enrolled in college in the semester immediately following high school graduation (P = 63.5%; NP = 64.7%). These respondents differed from those entering college in 1979--fewer of the present group, especially Persisters, enrolled in college immediately.

Living Arrangements. During the 1980-81 year, Persisters and Nonpersisters tended to have different living arrangements (p = .10). Most, however, lived with their parents (P = 68.6%; NP = 64.3%), and relatively fewer, but unequal proportions, lived alone (P = 5.2%; NP = 14.3%) or with friends (P = 0.9%; NP = 3.6). Despite the fact that a significantly larger proportion of Persisters overall were unmarried, a larger proportion of them were living with a spouse (P = 21.4%; NP = 14.3%). There was no difference between the groups in their estimate of how likely it was that they would have the same living arrangement if they were not in school; both believed it was more than "somewhat" likely they would.

Despite the variation in their living arrangements, there was no significant difference in the time it took to get to school, although it tended

to take Nonpersisters longer. While 35 percent of both groups made the trip in 30 minutes or less, and about 42 percent of the Persisters took between 31-60 minutes (NP = 35.0%), it took the remainder of the Nonpersisters longer: between 61-90 minutes, P = 19.9%, NP = 25.0%; and 90+ minutes, P = 3.1%, NP = 5.0%.

College Preference. Large and similar proportions of respondents reported that they were indeed allocated to the CUNY Community College that was their first choice (P = 73.8%; NP = 68.8%).

The two groups tended to differ on their first-choice college preference, however. About 45 percent of the Persisters had selected New York City Technical College (20.1%), Queensborough (13.4%), and Kingsborough (11.5%). These same schools accounted for the preferences of 61.8 percent of the Nonpersister group--19.0%, 23.8%, and 19.0%, respectively.

At the time of the Questionnaire, which was administered approximately 33 months after the sample started college, 68 percent of the Nonpersisters had dropped out of school; 7.9 percent reported that they had attended Queensborough Community College during 1980-81, and an additional 7.9 percent had attended Kingsborough for part (or all of that year)[1]. In significant contrast, and as expected, most Persisters were still in college, predominantly enrolled at New York City Technical College (22.5%), Queensborough (14.4%), Kingsborough (14.4%), and LaGuardia Community College (11.7%).

Educational Aspirations. Perhaps reflecting the fact that the Nonpersisters had not completed college (and were not likely to return, see below), their educational aspirations were both lower than and highly different from the aspirations of the Persisters (p = .0000). As measured by the highest degree they hoped to attain, the largest proportions of Persisters wanted a four-year degree (P = 35.2%; NP = 28.8%) or a master's degree (P = 27.4%; NP = 15.2%). Nonpersisters desired some college (or trade school education) but not necessarily a degree (P = 2.2%; NP = 23.8%); similarly, fewer Nonpersisters opted for a two-year college degree (P = 25.7%; NP = 19.7%). Thus the difference in aspirations we noted in the comparison of the

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[1]Below we will discuss in detail the sampling issues that make the data in this report somewhat suspect.

1979 respondents is again evident, and even more marked in the 1978 Persister-Nonpersister comparison.

In summary, for the 1978 Persisters-Nonpersisters we find greater differences in descriptive factors than was the case in the 1979 Persister-Nonpersister comparisons reported above. The differences in marital status (and in living arrangements) and in educational aspirations are particularly dramatic and as we will see below, marital status also appears to be related to the decision both to enroll in and to continue in college.

Financial Aid and Work Variables

As we saw in the 1979 comparisons, most respondents received some type of financial aid (P = 80.4%; NP = 70.2%)--TAP alone (P = 6.7%; NP = 8.5%), BEOG alone (P = 5.4%; NP = 2.1%), but usually a combination of the two (P = 37.1%; NP = 44.7%).

Also of interest is the 1978-1979 comparisons. It is apparent that fewer 1978 Nonpersisters than 1979 Nonpersisters received financial assistance. Changes in TAP-BEOG regulations, however, were not effectuated until 1980-81 or later, so that this difference suggests that the two classes differed in terms of eligibility (need).

Financial aid, however, constituted the primary source of suport for more 1978 Nonpersisters than Persisters (P = 19.4%; NP = 25.0%), the former also being more likely to be supported by their parents (P = 25.1%; NP = 32.1%). Small, but differing proportions of each group were supported mainly by their own savings (P = 0.9%; NP = 3.6%) or by a spouse (P = 5.3%; NP = 3.6%). Earnings from work was the major form of support for a relatively large number of respondents (P = 24.2%; NP = 19.6%). These differences approached statistical significance (p = .14), and were also different from the responses of the 1979 Persister and Nonpersister groups.

In terms of their own financial dependents, (1978) Persisters and Nonpersisters did not differ: most listed no dependents, while about one-third said they were responsible for one person (P = 32.2%; NP = 37.1%), probably themselves.

When we compared the proportions of Persisters and Nonpersisters who did and did not work during the 1980-81 year, including considering the number of hours a week they worked, there was no difference between them: 32.3 percent of the Persisters did not work, in contrast to 44.4 percent of the

Nonpersisters. While Persisters were attending school that year, which might account for the large number who were not working, this explanation does not hold for the Nonpersister group--they were not in school, and although married, tended to have no children and few family financial obligations.

Of those who worked, there was a large and statistically significant difference in the proportions of Persisters and Nonpersisters who worked at a paid job--73.7% and 58.2%, respectively. This tends to lend some confirmation to the hypothesis that financial need may not be as much of a factor in the decision to drop out of college (at least out of CUNY Community Colleges) as had been supposed. However, this is somewhat contradicted by the groups' rating of their jobs.

Respondents were asked to rate their job on six dimensions. Their responses are presented in Table 9 below.[1] As we found with the 1979

TABLE 9

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF THE LIKELIHOOD THAT SELECT VARIABLES CHARACTERIZE THEIR JOBS

VARIABLES:	P (N=159)	NP (N=34)	Diff.[b] (P-NP)
The job was related to my course work	2.39	2.26	+0.13
The job will help me reach my career goals	2.41	2.15	+0.26
I was satisfied with the job	2.84	2.76	+0.08
I worked mostly for money	3.09	3.38	-0.29
I worked mostly for the fringe benefits	1.91	2.15	-0.24
I worked mostly because I enjoy working	2.80	2.59	+0.21

[a]Scale: 1.0 = Mostly False; 2.0 = Somewhat False; 3.0 = Somewhat True; 4.0 = Mostly True. The higher the mean score, the more likely the statement was True of the job.

[b]t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

[1]The scale used in this and the scales used in all other comparisons in this section have been described in the preceeding portion of the Results dealing with the 1979 CUNY Retention Sample.

respondents, there were few differences between Persisters and Nonpersisters (see Table 9). On only one dimension did they tend to differ: whether they worked "mostly for money" and this, as well as working "mostly for fringe benefits", tended to be more true of Nonpersisters. Again, while the differences themselves are not significant, the fact they they are in the same direction for the 1978 and 1979 samples is suggestive.

Enrollment Decision Variables

To a much greater extent than obtained for the 1979 Sample, 1978 Persisters and Nonpersisters were different with respect to the reasons why they enrolled in college. On a list of 16 variables, the 1979 Sample differed significantly on how important four of them were. Persisters rated the following as more important: "contacts I would make in college would help in my career", "the people I respect most have college degrees",, "there was nothing else to do if I didn't go [to college]", and "I wanted to improve my qualifications for becomming a leader in community affairs". Note, however, that relative to the importance assigned to other reasons for enrolling in college, these four tended to be rated relatively lower in importance--about "some".

The mean scores of importance on the 16 variables comprising this set are summarized in Table 10 on the following page, 38. As can also be seen in the table, Persisters tended to rate two other variables as more important than did the Nonpersisters: "more education was necessary for the career I wanted" ($p = .06$) and "I wanted to learn more about certain subjects" ($p = .06$). Overall, the Persisters gave more importance to each of the listed reasons for enrolling in college; on all but one they attached greater importance than the Nonpersister group.

For both groups, the most important reasons for enrolling in college were similar, and were similar to the important reasons of the 1979 respondents: to get a better paying job, to prepare for a better life, and to have the career they wanted. Least important were: other people's belief that they would make good college material, the college enrollment status of their friends, the relation between education and leadership in the community and between college and being a better spouse. Thus, both groups saw college as a way of fulfilling their career goals and leading to a better future, without concern for the beliefs or opinions of others.

TABLE 10

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF FACTORS IMPORTANT IN THE DECISION TO ENROLL IN COLLEGE

VARIABLES:	P (N=230)	NP (N=68)	Diff.[b] (P-NP)
My teachers thought I was good college material	2.06	2.05	+0.01
More education was necessary for the career I wanted	3.46	3.20	+0.26Δ
More education would help me be a better spouse	1.93	1.81	+0.12
Business, church, or other community leaders thought I was good college material	1.71	1.56	+0.15
My parents wanted me to have a higher education	2.88	2.84	+0.04
I had a compelling interest in one area of specialty	2.93	3.13	-0.20
The people I most respect have college degrees	2.02	1.66	+0.36**
I felt that the contacts I would make in college would help in my career	2.45	1.92	+0.53*
I hoped to make many new friends in college	2.10	1.95	+0.15
More education would help me get a better paying job	3.65	3.48	+0.17
I wanted to improve my qualifications for becoming a leader in community affairs	1.96	1.64	+0.32**
Most of my friends were in or were going to go to college	1.97	1.80	+0.17
It was always expected that I would go to college	2.26	2.24	+0.02
There was nothing else to do if I didn't go	1.93	1.55	+0.38**
I wanted to learn more about certain subjects	3.12	2.84	+0.28Δ
College was a way of preparing myself for a better life	3.46	3.32	+0.14

[a] Scale: 1.0 = of No importance; 2.0 = of Some importance; 3.0 = of Moderate importance; 4.0 = of Great importance.

[b] t-test significance $\leq .01(*)$, $\leq .05(**)$, $\leq .10(\Delta)$.

These same 16 items further differentiated Persisters from Nonpersisters when they were asked to rate them in terms of their importance in the decision to continue in college. These ratings are presented in Table 11 on page 40.

Again, the groups' ratings on four items were significantly different and more important to Persisters. (In actuality, Persisters attached higher ratings of importance to all 16 items.) The significant items were: college contacts would help me in my career, more education would help me get a better paying job, making new friends in college, and more education was necessary to the career I wanted.

Persisters tended to differ from Nonpersisters on six other variables (p = .10). These also are indicated in Table 11 (page 40) and are not easily classifiable, extending to education preparing people to be better spouses to becomming a leader in community affairs.

Examining the variables for relative importance to one another, the same ones that were highly important in the decision to enroll in college were rated highest in the decision to continue. For Persisters, the reasons tended to be rated more important in continuing their education than they were for enrolling, but this pattern was not as clear for Nonpersisters.

When these results are compared with those obtained in the analysis of the 1979 Persisters and Nonpersisters, we find first, more significant differences and second, many more differences that approach statistical significance. This indicates a more clear-cut classification of the 1978 sample into Persister-Nonpersister subgroups.

General Satisfaction Variables

When asked if they would now make the same decision about what they would do after graduating from high school, the two groups differed dramatically: 43.7 percent of the Persisters would elect to enroll in the same college, in contrast to 28.8 percent of the Nonpersisters. Similar proportions, however, indicated they would attend some other college (P = 38.9%; NP = 32.9%). More Nonpersisters would delay enrollment (P = 15.4%; NP = 27.3%).

Almost half (45.4%) of the Persisters said yes, they are planning to return to college and to the same school in the semester following the administration of the Questionnaire (NP = 7.3%, yes). Another 12 percent (11.9%) of the Persisters thought that "maybe" they would (NP = 9.1%).

TABLE 11

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF FACTORS IMPORTANT IN THE DECISION TO CONTINUE IN COLLEGE

VARIABLES:	P (N=230)	NP (N=68)	Diff.[b] (P-NP)
My teachers thought I was good college material	2.28	2.28	0
More education was necessary for the career I wanted	3.53	3.27	+0.26**
More education would help me be a better spouse	2.19	1.86	+0.33Δ
Business, church, or other community leaders thought I was good college material	1.79	1.04	+0.75
My parents wanted me to have a higher education	2.78	2.70	+0.08
I had a compelling interest in one area of specialy	3.21	3.12	+0.09
The people I most respect have college degrees	2.19	1.87	+0.32Δ
I felt that the contacts I would make in college would help in my career	2.55	2.05	+0.50*
I hoped to make many new friends in college	2.15	1.85	+0.30**
More education would help me get a better paying job	3.69	3.39	+0.30*
I wanted to improve my qualifications for becoming a leader in community affairs	2.09	1.82	+0.27Δ
Most of my friends were in or were going to college	1.96	1.73	+0.23
It was always expected that I would go to college	2.23	2.12	+0.11
There was nothing else to do if I didn't go	1.77	1.47	+0.30Δ
I wanted to learn more about certain subjects	3.31	3.07	+0.24Δ
College was a way of preparing myself for a better life	3.57	3.34	+0.23Δ

[a] Scale: 1.0 = of no importance; 2.0 = of some importance; 3.0 = of moderate importance; 4.0 = of great importance.

[b] t-test significance $\leq .01(*)$, $\leq .05(**)$, $\leq .10(\Delta)$.

Relatively few Persisters, but a larger proportion of Nonpersisters reported that they would "probably not" or "definitely not" return to school (P = 12.3%; NP =36.9%). Nonpersisters were also significantly less likely to indicate that they would go back to any other school (P = 22.5%; NP = 16.4%). These differences were at the .0000 level of confidence and are reflected in the groups' general ratings of satisfaction with college.

As can be seen in Table 12 below, Persisters were significantly more satisfied with the college they attended this year (or had last attended), with

TABLE 12

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) DEGREE[a] OF SATISFACTION WITH SCHOOLING AND CAREER GOALS

VARIABLES:	P (N=230)	NP (N=68)	Diff.[b] (P-NP)
The college I attended this year	3.00	2.66	+0.34**
The curriculum (major) I chose	3.30	3.00	+0.30**
The quality of the education I received	3.03	2.83	+0.10
My decision to go to college	3.61	3.27	+0.34*
The progress I'm making	3.20	2.60	+0.60*
My current career goals	3.23	2.78	+0.45*
The relationship between my major and my career goals	3.21	2.62	+0.59*
The likelihood that I will finish all my education	3.37	2.66	+0.71*

[a]Scale: 1.0 = Very Dissatisfied; 2.0 = Somewhat Dissatisfied; 3.0 = Somewhat Satisfied; 4.0 = Very Satisfied.

[b]t-test significance $\leq .01(*)$, $\leq .05(**)$, $\leq .10(\Delta)$.

the curriculum they chose, and with their decision to go to college, their progress, their career goals, the relationship between their major and their career goals, and with the likelihood they will complete their education. On only one item did the Persister-Nonpersister difference not quite reach statistical significance: the quality of the education they received (p = .13). On all the variables, including this latter one, the Persisters' ratings were better than "somewhat" satisfied; Nonpersisters, also rated their satisfaction high, being relatively most satisfied with their decision to go to college and with the curriculum they chose. They had more regrets (i.e., were relatively

less satisfied) with the college they went to, their progress, and with the relationship between their major and career goals.

College Experience Variables

Persisters and Nonpersisters rated 29 items describing experiences students have in college. A listing of these, together with group mean scores, appears in Table 13 on the following page. As is readily apparent, Persisters rated almost all (25 of the 29) as "more true" of their experiences than did Nonpersisters.

Turning first to the variables that distinguished the two groups of respondents, these were eight items on which they differed and in the direction of being "more true" of Persisters. These, paraphrased, were: the chairperson has adequate office hours; I've met my chairperson; my classmates and I have similar life goals; my classmates and I are equally determined to complete college; most of my classmates have job; I feel comfortable in this school; I took part in at least one organized activity; and my classmates are friendly. These differentiating experiences seem to be of two kinds. One concerns the actual or perceived availability of college administrators, in the form of department chairpeople. The other relates to a perceived identification with other college students. The research literature suggests that these factors correlate positively with retention.

The Persister-Nonpersister differences on several other of these items also approached statistical significance ($p = .10$). These included: the professors' setting goals; an emphasis on counseling and advisory services; and strict rules about cutting classes.

Most characteristic of Persisters (that is, most likely to be true of more of this group) was: the availability of a student lounge; professors explaining course requirements; orientation sessions for new students; and friendships with friendly classmates--items that generally relate to feelings of "being part" of something. Least true of Persisters was the likelihood of their having taken part in a study skills program, or in an organized activity. A very similar pattern emerges when the relative ratings of Nonpersisters is examined.

In comparing these outcomes with those of the 1979 Persisters-Nonpersisters, we again note the finer differentiation of the 1978 Retention Sample. In other words, there were more and more clear-cut differences

TABLE 13

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) RATINGS[a] OF THE LIKELIHOOD OF HAVING SPECIFIC EXPERIENCES

VARIABLES:	P (N=230)	NP (N=68)	Diff.[b] (P-NP)
The college provides orientation for entering students	3.46	3.40	+0.06
I took part in the college's orientation program	2.92	3.00	-0.08
The college offers special instruction in study habits ("how to study")	2.74	2.66	+0.08
I took part in the college's program to improve my study habits	1.91	2.09	-0.18
My college emphasizes study counseling and advisory services	2.92	2.66	+0.26$^{\Delta}$
My college requires me to see a counselor or advisor periodically during the school year	2.71	2.53	+0.18
My college assigns me a specific advisor	2.71	2.53	+0.18
My advisor/counselor helps with personal problems	2.11	2.14	-0.03
The professors present material clearly and unambiguously	2.89	2.90	-0.01
My professors' class presentations are interesting	2.95	2.83	+0.12
My professors sets goals for the class at the beginning of each semester	3.25	3.02	+0.23$^{\Delta}$
My professors explain the course requirements at the beginning of the semester	3.63	3.55	+0.08
In addition to required courses, in my first year I was able to take other interesting courses	2.68	2.62	+0.06
There are people to help me select the courses I want or need	3.02	2.81	+0.21
My professors emphasize intellectual and cultural pursuits outside the classroom	2.38	2.16	+0.22
The chairperson of my department (program) has adequate office hours for students	2.67	2.22	+0.45*
I've met and talked to the chairperson of my department (program)	2.39	1.93	+0.46**
I take part in at least one organized activity at college (clubs, sports, newspaper, etc.)	1.96	1.62	+0.34**
In general, my classmates are friendly	3.27	2.97	+0.30*
I consider my classmates as peers	3.01	2.81	+0.20
My classmates and I have the same degree of determination about finishing college	2.75	2.23	+0.52*
My classmates and I have similar goals in life	2.60	2.25	+0.35**
In addition to going to classes, most of my classmates have jobs	3.25	2.86	+0.39*
I've been able to make friends here	3.39	3.19	+0.20
There is a lounge where students gather during their free time	3.65	3.53	+0.12
Overall, I feel comfortable in this school	3.18	2.84	+0.34**
My college has strict rules about cutting classes	2.75	2.47	+0.28$^{\Delta}$
At or nearby the college is a well-stocked bookstore	2.96	2.84	+0.12
The college offers students a variety of social activities	3.04	3.00	+0.04

[a] Scale: 1.0 = Mostly False; 2.0 = Somewhat False; 3.0 = Somewhat True; 4.0 = Mostly True. The higher the mean score, the more likely the statement is True.

[b] t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

between the 1978 Persister and Nonpersister groups than there was between the 1979 Persisters and Nonpersisters.

Quality of Services Variables

Table 14 on the following page presents respondents' ratings of 22 items pertaining to the quality of educational services provided by the college they were, or had been, attending. Generally, the ratings were somewhat less than "good", with those of the Persisters being better than those of the Nonpersister group (see Table 14).

Six variables differentiated the two groups at a statistically significant level. As expected, Persisters rated higher their "decision to attend this school". They also indicated better " opportunities to meet with instructors", "attention given to student grievances", "the college's system for contesting grades", "the availability of advisors for help with educational problems", and the "services provided by the library staff". In addition, Persisters tended to rate the "availability of career advisors" higher ($p = .10$), as well as the nature of the "advice and recommendations of advisors" ($p = .11$). The particular nature of these variables suggests again that at least this group of Persisters feels "connected" to their colleges and perceives college as a helpful and supportive environment to a greater extent than do Nonpersisters.

There was only one variable rated better than "good" by the respondents: "the knowledge their instructors had of their subject matter". About "average", or "slightly below" average was the mean rating for "student grievances" and, for Nonpersisters, the system for contesting grades. Nonpersisters rated lowest ("good") the availability of advisors for educationally-related problems, which suggests that as a group they may have had some difficulty in the academic area.

The responses of the 1978 and 1979 group to this question differ. Not only do more variables discriminate 1978 Persisters from Nonpersisters, but the specific variables tend to be different, as is the direction of the difference. This again raises the issue of the comparability of the two samples and, relatedly, questions about the stability of variables that correlate with persistence in CUNY Community College career programs.

Before we turn to an examination of the identification, discriminating ability, and generalizability of retention predictors, we will compare the responses of the 1978 Persisters and Nonpersisters on the final set of retention variables: their reasons for changing colleges or for dropping or stopping out of college.

TABLE 14

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) MEAN RATINGS[a] OF THE QUALITY OF COLLEGE SERVICES

VARIABLES:	P (N=230)	NP (N=68)	Diff.[b] (P-NP)
The services the admissions office provides are	2.20	2.27	-0.07
In general, the size of my classes is	2.55	2.41	+0.14
The variety in sources of financial aid available to students is	2.57	2.63	-0.06
The effort the college makes to place graduates in jobs related to their career is	2.34	2.18	+0.16
The number of courses available in my major field of study is	2.79	2.90	-0.11
The kind of facilities (labs, equipment, etc.) available to students in my major is	2.77	2.73	+0.04
In terms of my interests, the school library is	2.81	2.76	+0.05
The library staff provides services that are	2.76	2.52	+0.24**
The conditions for using the library to study are	2.90	2.76	+0.14
The variety of student activities are	2.63	2.55	+0.08
The quality of the student activities are	2.45	2.37	+0.08
The availability of advisors to work with students on educational problems is	2.34	2.00	+0.34**
The availability of advisors to work with students on career-related decisions is	2.38	2.15	+0.23Δ
The advice or recommendations I get from advisors is	2.41	2.19	+0.22
The level of teaching skills of my instructors is generally	2.82	2.65	+0.17
The knowledge my instructors have about their subject matter is	3.10	3.11	-0.01
When it comes to giving me help with a course-related problem, my instructors are	2.84	2.67	+0.17
The opportunities to meet with my instructors are	2.78	2.33	+0.45*
Looking back, my decision to attend this school was	2.86	2.34	+0.52*
The college's system for letting students contest their grades is	2.37	2.04	+0.33*
The chances students have to play an active role in setting school policy are	2.23	2.18	+0.05
The attention given to student grievances is	2.16	1.84	+0.32*

[a]Scale: Poor = 1.0; Average = 2.0; Good = 3.0; Excellent = 4.0. The higher the mean score, the better were the services.

[b]t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

Reasons for Leaving School

As we described earlier, the Retention Questionnaire asked respondents if they ever changed colleges--transferred--or if they ever dropped out of college either permanently or with the intention of returning in the future. Those responding "yes" to either of these questions were further instructed to rate each item on a list of 33 variables. The variables consisted of reasons usually found to correlate with nonpersistence in college. Table 15, on the following page, summarizes the scores of Persisters and Nonpersisters who responded; mean scores and differences are presented.

There was no significant difference in the proportions indicating that they had changed schools (P = 18.7%; NP = 14.3%), but as expected, a large difference in dropout rates--P = 24.4%; NP = 78.1%. A total of 135 Persisters (58.7% of the 1978 Persister sample) and 57 Nonpersisters (83.8% of the 1978 Nonpersister sample) answered the question's second part, rating each of the variables listed. See Table 15, page 47.

The Persisters and Nonpersisters (who responded) were significantly different on two items and tended to differ on three additional ones. In these instances, the ratings indicated that the statements were "more true" of Nonpersisters. These distinguishing variables were: "I lost interest in school", "the college didn't offer a program of interest to me", "I didn't like the other students", "college was too difficult", and "I wanted to work full time".

Again, when we compare the items that differentiated the 1978 Persisters and Nonpersisters with those that distinguished between the two comparable 1979 groups we find some similarities, but also differences in specific reasons. The 1978 Nonpersisters' responses suggest feelings of alienation from the college and little sense of identification with the student population. They also had stronger feelings that college was irrelevant to their needs and interests. These data, and those noted above, give an impression that this group of Nonpersisters could have benefited from a counseling program focused on clarifying their needs and expectations about college. The data also suggest that they might have profited from a reexamination of their major program of study, with particular emphasis on how it relates to the fulfillment of their career goals.

This concludes this portion of the findings. The next section of the

TABLE 15

1978 PERSISTERS' (P) AND NONPERSISTERS' (NP) MEAN SCORES[a] ON REASONS FOR TRANSFERRING OR DROPPING OUT OF COLLEGE

VARIABLES:	P (N=135)	NP (N=57)	Diff.[b] (P-NP)
College was too expensive	1.92	2.17	-0.25
College was too difficult	1.66	1.96	-0.30Δ
College was too easy	1.52	1.49	+0.03
The college didn't offer a program of interest to me	1.61	1.96	-0.35**
I didn't like the instructors	1.78	1.85	-0.07
I didn't like the other students	1.33	1.57	-0.24
I didn't like the geographic location	1.75	1.76	-0.01
I became too ill or disabled to continue	1.38	1.43	-0.05
Because of illness in my family	1.33	1.34	-0.01
Because of personal financial reasons	2.08	2.38	-0.30
Because of family financial reasons	1.81	2.02	-0.21
I wasn't really ready for college	1.98	2.06	-0.08
I was needed at home	1.49	1.58	-0.09
I was getting married	1.18	1.38	-0.20
I wanted to raise a family	1.30	1.37	-0.07
I wanted to work full time	2.10	2.48	-0.30Δ
I was lonely and unhappy at college	1.56	1.84	-0.28
I had marital or other family problems	1.62	1.83	-0.27
I was discouraged by my grades or progress	2.26	2.33	-0.07
I just lost interest in school	1.88	2.38	-0.50*
I was put on probation because of grades	1.99	1.73	+0.26
I was dismissed because of grades	1.41	1.58	-0.17
I was asked to leave for reasons other than grades	1.08	1.16	-0.08
The job I wanted didn't require college	1.33	1.43	-0.10
My friends go to another school	1.24	1.45	-0.21
The college was too small	1.33	1.32	+0.01
The college was too large and impersonal	1.42	1.37	+0.05
I didn't like the social life at college	1.63	1.80	-0.17
The college didn't offer adequate financial aid	1.63	1.82	-0.19
The policies of the college were too childish	1.48	1.57	-0.09
The academic standards were too high	1.34	1.45	-0.11
The academic standards were too low	1.45	1.53	-0.08
I wasn't getting anything out of college	1.81	2.10	-0.29

[a]Scale: 1.0 = Mostly False; 2.0 = Somewhat False; 3.0 = Somewhat True; 4.0 = Mostly True. The higher the mean score, the more likely the item is True of the respondent.

[b]t-test significance $\leq .01$(*), $\leq .05$(**), $\leq .10$(Δ).

Results presents a description of the procedures employed in the discriminant analyses, the purpose of which was to identify a set of variables that characterize persistence in CUNY Community College career programs and that could be used to predict which students are likely to continue their schooling.

DISCRIMINANT ANALYSES

Discriminant analysis is a statistical procedure that attempts to distinguish between two or more groups. Starting with a collection of variables (in this study, questionnaire items and other scores) on which the groups are expected to differ, the discriminant procedure weighs and combines the variables in such a manner as to force the groups' mean scores (centroids) to be as statistically distinct as possible. In other words, this technique selects the particular combination of input variables, and weighs them so that when they are linearly combined, the values obtained for the different groups will be statistically as far apart as possible.

Establishing the strongest combination of variables is the first step. The next step is to test the effectiveness of the resulting discriminant function. This is accomplished statistically by using the discriminant function to classify subjects (i.e., questionnaire respondents) into groups (in this study, into groups of "persisters" or "nonpersisters"). The relation between the assigned group membership of the subjects and their actual group membership is expressed as a "percent correct classification."[1] The aim of this procedure is to predict group membership for other subjects whose group membership is not known, but for whom the data used in the discriminating functions is available.

In this study, we first listed all variables that significantly distinguished between 1979 Persisters and Nonpersisters. Using a selected

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[1]This part of the analysis can be performed in one of two ways: the first condition is "without known prior probability." Here, the discriminant analysis assumes an equal division of cases between groups and is not statistically required to allot more subjects to any particular one. The resulting classification is thus based exclusively on subjects' scores.

In the second condition, one can add the actual proportionate distribution of cases to the statistical program; this is the condition of "known prior probability." In the instance of the 1979 CUNY Retention Sample, the "known prior probability" is that about 9 out of 10 cases will be Persisters (383 ÷ 412).

subset of these variables (see below), we then tested the discriminant function on these same 1979 Persisters and Nonpersisters--that is, we classified the original set of subjects to see how many (what percentage) were correctly classified. This answered our first research question: whether we could identify a set of variables that distinguished the CUNY Community College student who persisted in a career program from the student who did not persist.

Next, using most of these same variables, we tried to predict persistance for the 1978 CUNY Retention Sample of Persisters and Nonpersisters. This represented a test of the generalizability of the retention predictors: to what extent do these variables accurately classify a sample other than the one on which they were developed?

Finally, we identified still another set of discriminating variables--those that differentiated between the 1978 Persisters and Nonpersisters--and tested the power of the discriminating function to accurately classify this group (i.e., the 1978 Persisters and Nonpersisters). This served as an additional check on the similarity of critical factors for two different, independent samples.

We will describe each of these analyses below and then conclude with a discussion of the relationship between variables that predict retention and those that we had previously found to predict enrollment.[1]

Predicting Retention, 1979 CUNY Retention Sample

We considered all variables--"old" (from the CUNY application or from the Enrollment Questionnaire[2]) as well as "new" (items from the Retention Questionnaire)--on which 1979 Persisters differed significantly from Nonpersisters. Since the number of these distinguishing variables was too large to be used in a discriminant analysis, we narrowed the list, eliminating variables we judged as duplicative or repetitive. Also eliminated was a large number of variables that we believed differentiated the groups only because Nonpersisters had already dropped (or stopped) out of college. Then, we

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[1] Heller, Wheeler, and Geringer, op. cit.

[2] See Appendix B.

discarded variables deemed to be random or chance--items on which the groups differed for no apparent logical reason and which might not reasonably be expected to appear in other populations. (The variables' list was similarly narrowed in all the analyses described below.)

Discriminant analysis #1. Thirteen items were entered into the first discriminant analysis, as follows:

1. Took part in at least one organized activity in college (new variable, see Table 6. This item was "more true" of 1979 Persisters than Nonpersisters).

2. College was too expensive (new variable, see Table 8. This was "more true" for Nonpersisters).

3. I was getting married (new variable, see Table 8. This was "more true" of Nonpersisters).

4. Did not work at a paid job (new variable, see pages 17 and 18. This item, which did not discriminate between 1979 Persisters and Nonpersisters, was included because of its significance in the 1978 comparison).

5. [I selected this school because] other schools would be more difficult (old variable. Nonpersisters were more likely to select a college on the basis that other schools would be more difficult).

6. College admissions average score (old variable, see Table B1. Persisters had a significantly higher average than Nonpersisters).

7. [Selected] accounting or data processing as first-choice curriculum (old variable, see Table B1. Nonpersisters were more likely to have chosen and enrolled in these curricula).

8. Just lost interest in school (new variable, see Table 8. This variable tended to be rated more true by Nonpersisters).

9. Curriculum related to career goal (old variable, see Table B1. Persisters saw a stronger relationship between their program of study and their major than did Nonpersisters).

10. Overall, I feel comfortable in this school (new variable, Table 6; rated more true by Persisters).

11. Job I wanted didn't require college (new item, Table 8. More Nonpersisters than Persisters indicated that this was true).

12. Was lonely and unhappy at college (new variable, Table 8. This item was more true of Nonpersisters).

13. High salaries are possible with a high school diploma (old variable, Table B1. More Nonpersisters were likely to believe this to be true).

When these 13 items were entered into the discriminant analysis, under the condition of equal probability, the last two dropped out since they did not add to the separation of the groups. The 11-item discriminant function had a Wilks' Lambda value of 0.76 which is high (the lower the Lambda value, the farther apart are the groups' centroids as determined by the function), and a canonical correlation of .49.

As can be seen in the following figures, approximately 91 percent (90.8%) of the 1979 CUNY Retention Sample was correctly classified into Persister-Nonpersister groups using the combination of these 11 variables.[1] In other words, by using 11 variables, we accurately classified 9 out of 10 respondents as CUNY Community College Persisters or Nonpersisters.

Actual Group Membership	N Cases	Predicted Group Membership	
		Persisters	Nonpersisters
Persisters	383	351 (91.6%)	32 (8.4%)
Nonpersisters	29	6 (20.7%)	23 (79.3%)

Predicting Retention, 1979 and 1978 CUNY Retention Samples

To ascertain whether a same set of variables would predict persistence for the 1978 sample (as well as for the 1979 group) required that we use variables they had in common. This limited us to select items from the CUNY application form and from the Retention Questionnaire.

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[1] In this and all following discriminant analyses there were subjects with missing data for one or more variables (usually resulting from a no response to a particular item). In this statistical technique, one can either delete the subject (thus reducing the sample size) or substitute the group mean for the missing score. We used the latter procedure. The number of subjects with missing data for any one variable was invariably low, but every subject who had data missing for any of the variables would have been eliminated, leaving only a 25% sample with complete data. Since the original sample was small and very skewed to begin with, we judged the error introduced by the use of group means was of less consequence than the disadvantages of reducing sample size further.

Discriminant analysis #2. Starting with variables on which the 1979 Persisters and Nonpersisters differed, we selected the following 11 items to be used in this next discriminant analysis, most of which were also used in the one described above:

1. College admissions average score.
2. Accounting or data processing as first-choice curriculum.
3. [College affords good] opportunities to meet with instructors (see Table 7; 1979 Persisters rated this factor better than did Nonpersisters).
4. Took part in at least one organized activity in college.
5. College was too expensive.
6. I was getting married.
7. Just lost interest in school.
8. I was put on probation because of grades (see Table 8; this item was more true of 1979 Nonpersisters).
9. Job I wanted didn't require college.
10. Did not work at a paid job.
11. Was lonely and unhappy at college.

These variables all contributed to the discriminant function, and when used to classify the original (i.e., the 1979) set of respondents, did so with an overall accuracy rate of 90.3 percent. The data shown illustrates the actual and the assigned group membership of the 1979 CUNY Retention Sample. It shows that under the condition of equal probability, this discriminant function

Actual Group Membership	N Cases	Predicted Group Membership	
		Persisters	Nonpersisters
Persisters	383	351 (91.6%)	32 (8.4%)
Nonpersisters	29	8 (27.6%)	21 (72.4%)

correctly classified 91.6 percent of Persisters (and incorrectly assigned the remainder--8.4 percent--to the Nonpersister group) and 72.4 percent of the Nonpersisters (27.6 percent of Nonpersisters were classified incorrectly as members of the Persister group). In other words, this analysis, as was the one reported above, is better at predicting membership for one group than for the other: the CUNY Persister is easier to identify (strongly so in the absence of the consideration of "known prior probability"); or worded differently, it is easier to mistake a Nonpersister for a Persister.

Discriminant Analysis #3. The next step involved using these same 11 variables (developed on the 1979 Sample) to predict persistence among the respondents comprising the 1978 CUNY Retention Sample.

Only seven of the 11 items were found to contribute to the discriminating function for the 1978 sample. These were (below we have indicated the 1978 Persister-Nonpersister results on each variable):

1. College admissions average score (there was no significant difference between 1978 Persisters and Nonpersisters; see Table B2).

2. [College affords good] opportunities to meet with instructors (rated higher by 1978 Persisters, see Table 14).

3. Took part in at least one organized activity (see Table 13; this variable was "more true" of Persisters).

4. I was getting married (see Table 15; ratings of 1978 Persisters and Nonpersisters did not differ significantly--p = .11).

5. Just lost interest in school (see Table 15; this was more likely to be true of Nonpersisters).

6. Was put on probation because of grades (see Table 15; this item did not distinguish between 1978 Persisters and Nonpersisters).

7. Worked at a paid job (this variable statistically differentiated the 1978 Persister from the Nonpersister).

(The four variables that dropped out were: accounting or data processing as first-choice curriculum; college was too expensive; the job I wanted didn't require college; and I was lonely and unhappy at college. Except for the first, the others did not differentiate 1978 Persisters and Nonpersisters.)

The discriminant function (with equal probability) resulting from the

combination of the seven variables corrected classified only 66.1 percent of the 1978 CUNY Retention Sample overall, inaccurately overestimating the number of Nonpersisters as can be seen in the following figures:

Actual Group Membership	N Cases	Predicted Group Membership	
		Persisters	Nonpersisters
Persisters	230	155 (67.4%)	75 (32.6%)
Nonpersisters	68	26 (38.2%)	42 (61.8%)
Unknown	8[a]	7 (87.5%)	1 (12.5%)

[a]Eight subjects whose retention status was indeterminable were included to ascertain how they would be classified.

This outcome suggests that the 1978 and 1979 CUNY Retention Samples were dissimilar to one another, and confirms the impression we obtained in examining the individual variables. It should also be noted that while the accuracy rate is better than what can be expected by chance (under the condition of equal distribution the chance classification should have been 50-50), it tends to understate the Persister group.

Discriminant analysis #4. In an effort to improve the accuracy rate, we performed another discriminant analysis with the same seven variables, but under the condition of known prior probability. Although the overall proportion correctly classified rose to 77.18 percent, the results now become skewed in the other direction--yielding too few Nonpersisters:

Actual Group Membership	N Cases	Predicted Group Membership	
		Persisters	Nonpersisters
Persisters	230	213 (92.6%)	17 (7.4%)
Nonpersisters	68	51 (75.0%)	17 (25.0%)
Unknown	8	8 (100.0%)	----------

It is apparent that the same set of variables is not equally effective in discriminating between 1978 Persisters-Nonpersisters and 1979 Persisters-Nonpersisters. This is not unexpected in light of the differences in their responses to the Retention Questionnaire. For example, as we saw earlier, the 1979 groups differed in whether the expense of college was a significant

reason for dropping out of school; it was not a significant factor for the 1978 subgroups. As another example, 1978 Persisters and Nonpersisters differed with respect to how satisfied they were with schooling and with their career goals generally, while 1979 Persisters and Nonpersisters tended not to differ in these ratings.

Predicting Retention, 1978 Retention Sample

Two additional discriminant analyses were performed, in these instances using variables that had been found to discriminate between 1978 Persisters and Nonpersisters. The purpose of these analyses were to shed additional light on the question of why the 1979-developed variables did not work well on the 1978 sample: was it a function of the variables themselves (in which case we would have a better appreciation of whether retention predictor variables are stable with populations other than that on which they had been developed) or, alternatively, was it a function of a difference in the composition or nature of the two populations?

Discriminant analysis #5. The first of these discriminant analyses used six items that strongly discriminated between the 1978 Persisters and Nonpersisters--and all of which favored the Persisters:

1. Enrolled in college because contacts would help in my career (Table 10).
2. Continued in college because more education would lead to a better paying job (Table 11).
3. I am satisfied with the progress I am making (Table 12).
4. I am satisfied with my decision to attend college (Table 12).
5. ...most of my classmates have jobs (Table 13).
6. Worked at a paid job.

Under the statistical condition of equal distribution, the following classifications were obtained:

Actual Group Membership	N Cases	Predicted Group Membership	
		Persisters	Nonpersisters
Persisters	230	166 (72.2%)	64 (27.8%)
Nonpersisters	68	26 (38.2%)	42 (61.8%)
Unknown	8	7 (87.5%)	1 (12.5%)

The overall proportion of cases classified correctly was 69.8 percent, somewhat better than chance. As can be seen, however, the number of Nonpersisters was again overestimated.

Discriminant analysis #6. The final discriminant analysis used the same six variables under the condition of known prior probability of group membership. Although the proportion of cases classified correctly rose to 80 percent (79.9%) overall--and was much higher than the chance estimation--as can be seen below, the results were in the opposite direction: Persisters were overestimated.

Actual Group Membership	N Cases	Predicted Group Membership	
		Persisters	Nonpersisters
Persisters	217	217 (94.3%)	13 (5.7%)
Nonpersisters	68	47 (69.1%)	21 (30.9%)
Unknown	8	8 (100.0%)	---------

ENROLLMENT AND RETENTION

The most significant variables predicting CUNY applicants' enrollment decisions--whether or not they would enroll in the Community College and curricular program to which they were allocated--were:[1]

1. Whether the curriculum was (perceived as) related to their career goal;
2. The geographical location of the first-choice college--Brooklyn and Queens;
3. Whether the respondent considered a four-year CUNY college (as a stronger option than a two-year one);
4. Whether the respondent reported needing (i.e., perceived themselves as needing) remedial courses; and
5. Whether the respondent considered full-time work as an alternative to enrolling in a postsecondary institution.

These variables classified the Enrollment Study population (see Figure 1) into four groups, at a rate very much more accurate than expected by chance. "CUNY attendees" (those that enrolled in the college of allocation--similar to this study's Persister group) were more likely than "Dropouts"

[1]Heller, Wheeler, and Geringer, op. cit.

(enrollees who dropped out of CUNY two-year colleges before the completion of their first year--similar to the Nonpersister group) to perceive the allocated curriculum as being relevant to their career goals; they were also less likely than Dropouts to list a first-choice college located in Queens or Brooklyn. The CUNY attender more seriously considered a four-year school and was less likely than the Dropout to have considered full-time work as an alternative to college. (There was no significant difference between the proportions of Attenders and the Dropouts who felt they need remediation, although this variable did discriminate among these analytic groups and the others--NonCUNY (college) Attenders and applicants who decided not to pursue additional education at that time.)

The best discriminating variables obtained in the Retention Study--used in discriminant analyses #5 and 6--do not bear any apparent relationship to the enrollment-decision variables. The factors that correlate best with retention relate primarily to beliefs, attitudes, and satisfaction. Several of the enrollment variables, however, are also attitudinal--although they tap somewhat different beliefs. Very suggestive, however, are common underlying themes: the relation between the perceived relevance of the course of study to career goals with the two variables (in this study) that pertain to career interests. As one hypothesis, committment to a career concept seems to be a common factor in enrolling in and continuing in two-year college programs.

Also of interest is the role of paid work and other financial need variables; this general topic appears as strong variables in both studies. As indicated, however, the specific details and their causal relationship to enrollment and/or retention remains ambiguous. On face, financial variables are expected to be critical; the literature certainly indicates that they are, and the opinions of college faculty and staff support it as well. Our data are not clear: certainly it would be beneficial to investigate this set of factors in more detail (especially in light of rising tuition costs and reduced levels of financial assistance), preferably on a college-by-college basis and for groups of students differing in selected characteristics--age, sex, and major program of study.

DISCUSSION

The data we have presented enables us to describe, for each of two classes starting in CUNY Community College career programs, students who persist through almost two years of schooling and students who drop out or stop out along the way. Further, we identified certain characteristics that correlate with and predict retention somewhat better than chance.

In this section, we will integrate the large amount of data we have available. First we will discuss the results with respect to predicting retention in college. Then, we will summarize the distinguishing characteristics of Persisters and Nonpersisters and how the study outcomes may have been influenced by the sampling design.

The last part of the Results section dealt with several discriminant analyses we performed to identify characteristics (variables) that would predict retention. In the first two instances, based on data describing the 1979 sample, we were able to predict--with an accuracy rate of 91 percent--which 1979 students were likely to persist in CUNY two-year colleges and which were not likely to persist. Before we describe the implications of this predictive potential, in terms of the issues we raised for study, it is important to examine the accuracy rate itself: specifically, have we predicted retention at a rate better than chance?

One condition of "chance" is that it is equally probable for students to persist or not to persist. This matches the discriminant analysis' condition of "equal probability" (or, no known probability). Thus, the first two discriminant analyses resulted in a classification of students into Persister and Nonpersister groups that was significantly different from that expected if there was equal likelihood of persisting or not persisting in college.

It is obvious, however, that the probability is not 50-50. The actual distribution of the 1979 Retention Sample is 93:7, Persisters to

Nonpersisters.[1] Taking this obtained distribution into consideration, to what extent have we improved on predicting retention? By knowing only the proportions that fall into the two groups--that is, by having only the prior knowledge that about 93 percent of students are still in school two years after they initially enrolled--and by randomly assigning cases to each group, the chance probability is that 87 percent of the subjects will be classified correctly. (This figure is derived as follows: assume we have 100 cases about whom it is known that 93 percent belong to Group A and 7 percent to Group B. We now randomly classify 93 and 7 cases to each group, respectively. Probability tells us that 93 percent of the Group A classifications will be correct (86.5 cases) as will 7 percent (.5 cases) of those assigned to Group B. Summing these correct assignments, 87 subjects, or 87 percent will be classified--by chance--as members of the groups to which they actually belong.)

Taking the actual distribution of Persisters to Nonpersisters into account, the first two discriminant analyses, which correctly classified 90.8 and 90.3 percent of the 1979 Sample, respectively, was not very different from chance. The effectiveness of these analyses is somewhat difficult to evaluate: a ceiling effect ocurs because of the very skewed distribution of the groups. For example, in a population of two equal-sized groups, chance distribution would yield a 50 percent correct classification with considerable room for improvement by any system that is applied. In this study, when chance assignment alone yields an 87 percent overall correct classification, there is not much leeway for improvement.

However, it is important to note what happens to each of the two groups separately. For the 1979 Persisters, going from about 87 percent (chance) to about 92 percent correct was not a very great improvement. But for the 1979 Nonpersisters, the increase from .5 percent (chance) to 79.3 percent (#1) and 72.4 percent (#2) correct is considerable. Since we are

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[1] As noted earlier in this report, the acknowledged dropout rate is reported to be even higher--to be as much as 20 percent by the end of the first year. The disparity between our dropout rate of 7 percent and that reported by the University is related to differences in how these rates were estimated: in this study, they reflect Questionnaire responses. University studies have access to registration and enrollment data for the entire population of students. The dropout rate we obtained for the 1978 Sample (22.8%) is a closer approximation to the University rate than our 1979 dropout rate.

concerned with Nonpersisters, these first two discriminant analyses have contributed to predicting which students are more likely to drop (or stop) out.

The independent discriminant analyses (#5 and #6) for the 1978 Sample produced better-than-chance outcomes. (Consideration of their--the 1978 Sample's--actual distribution means that 65 percent (64.8%) of the cases could be, by chance, accurately classified if all that were known was that 77 percent were Persisters and 23 percent were Nonpersisters.) For the 1978 Sample, using variables that distinguished this group of Persisters and Nonpersisters, we were able to accurately classify respondents in 69 percent of the cases in one instance[1], and in 80 percent of the cases in the other instance.[2]

These results indicate that predictions about retention can be made with some degree of confidence in their accuracy. A comparison of the accuracy of the discriminant analysis functions derived for the 1978 and 1979 populations (#1 and #2 and #5 and #6, respectively) is difficult to make due to the very skewed distribution of the 1979 sample. Nevertheless, for both populations--even when the prior information about the population distribution is not included--we find that the analyses do reflect the groups' unequal sizes, that the classification is more accurate for the Persister than for the Nonpersister group, and that the overall accuracy of prediction is higher than expected by chance.

Let us examine the question of the generalizability of the distinguishing variables before we discuss some of the differences between the construct and hence, composition of the 1979 and 1978 Samples that affected the results.

First, we can just compare variables that differentiated the 1978 groups with those that differentiated the 1979 groups. Although we will not present the variable-by-variable contrast here again, it is obvious that although many of the same variables were significant, there were many more items on which the 1978 Persisters and Nonpersisters differed. Furthermore, there appears to be somewhat greater consistency among the items. Finally, the

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[1]Discriminant analysis #5 where the groups' membership was set at 50-50.

[2]Discriminant analysis #6 where the chance acccuracy rate was 65 percent under the condition of known prior probability.

direction of all the differences in the 1978 Sample has not only greater face validity, but accords with the findings of other researchers as these are reported in the literature.

Discriminant analyses #3 and #4 present another way of looking at the question of the generalizability of predictors of persistence. In these analyses, we used variables the 1979 and 1978 Samples had in common and on which (for the most part) Persisters and Nonpersisters differed. The 1979 Sample was used to develop the discriminant function which was tested for its generalizability in classifying members of the 1978 Sample. The results indicated that there was a better than chance classification when the actual distribution of the 1978 Sample was considered (#6). This can be interpreted to mean that the two samples had retention predictor variables in common.

There were basic differences between the 1979 Sample and the 1978 Sample which affect the outcomes of this investigation. To begin with, the 1978 sample was surveyed about 33 months after students had started college (for the 1979 sample, the interval was 21 months), thereby enabling potentially more students to drop out: this is reflected in the difference in the two samples' dropout rates--7 percent (1979) and 23 percent (1978). As noted, the 1978 sample's dropout rate more nearly approximates the CUNY rate, which lends confirmation to other indications that this Sample represents a truer picture of the CUNY student population.

Moreover, despite some similarities, there were also methodological differences in the ways the two samples were constructed. To be included, the 1979 group had to respond to two different questionnaires administered about one year apart; in contrast, the 1978 group had to respond to only one questionnaire. It is well established that questionnaire respondents differ from nonrespondents, and as the 1979 Sample(s) developed, it became more dissimilar when compared with the original random sample from which it was drawn; the 1978 Sample(s) was more similar to the random sample which it represents. In other words, the evidence suggests a better match between the 1978 group and the Fall 1978 allocant universe than between the 1979 group and the Fall 1979 allocant.

Another way in which the Retention Samples differed from one another was that while both included respondents who had not enrolled in the CUNY Community Colleges to which they had been allocated, their proportions (as

measured by the number of these respondents to the Retention Questionnaire) differed: 20 percent of the 1979 respondents were identified as attending NonCUNY colleges, in contrast to 39 percent of the 1978 respondents. (Note that the 39 percent of nonenrollees among the 1978 respondents more closely matches the expected 40 percent nonenrollee rate.)

The most critical difference between the 1979 and 1978 Samples, however, relates to how they were defined and to their composition after they were delimited. We defined the 1978 respondents as CUNY or NonCUNY subjects (and as Persisters or Nonpersisters) based on their responses to several questionniare items. (Because a questionnaire's internal responses are more frequently arbitrary than not, reliance on self-reports to any single question must be balanced against making an independent judgment based on several items; we chose the latter course believing that it represented a more accurate appraisal of status.) Thus, we defined 68 percent of the 1978 respondents as CUNY (i.e.,the CUNY Retention Sample) and, of these, further defined 22.8 percent as Nonpersisters. All of the 1978 CUNY Retention Sample was currently attending or had attended CUNY two-year colleges[1], and 37 percent of the total sample reported themselves to be Nonpersisters.[2]

Generally the 1979 Samples were defined in the same way, although there were differences which call into question how good a sample it was. (Several of the differences have been referred to--as, for example, their having had to complete two questionnaires to be included in this study.) First, their CUNY-NonCUNY status was predetermined on the basis of the Enrollment Study. Thus, respondents who had been defined as CUNY by their answers to the Enrollment Questionnaire were defined as CUNY for this present study; by doing this, not only are the two (i.e., 1978 and 1979) samples defined somewhat differently, but we did not take into account those 1979 CUNY people who may have transferred to NonCUNY schools between the time of the administration of the Enrollment Questionnaire and the

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[1] See Question 8.

[2] Question 25 (see Appendix A) asked respondents directly if they had stopped out or dropped out of college; 24.4 percent of the group defined as Persisters and 78.1 percent of the group defined as Nonpersisters (on the basis of several questions) said "yes". This equals an 36.6 percent overall dropout rate for the 1978 CUNY Retention Sample.

Retention Questionnaire. While such people were eliminated from the 1978 CUNY Retention Sample, they were likely to be included in the 1979 Sample. Indeed, 13 percent of the 1979 CUNY Persister sample reported attending NonCUNY colleges (colleges other than CUNY two-year ones). In other words, the 1979 CUNY Persister group includes many respondents who were defined as NonCUNY Persisters in the 1978 Sample.

About 18 percent of the 1979 Sample defined itself as dropouts or stopouts, while we defined about 7 percent of the Sample as Nonpersisters.[1] While the difference between our definition of persistence and self-reported status is slightly smaller for the 1979 respondents than for the 1978 respondents, it (i.e., the difference as well as the low nonpersistence rate) is because the CUNY-status definition was less good to begin with. This helps account for the much lower proportion of the 1979 Sample who defined themselves and who we defined as Nonpersisters.

Most retention studies that rely on questionnaire surveys suffer similar limitations, especially if they span a considerable amount of time. One difficulty is that students who persist tend to respond in greater proportions than those who do not, but more importantly, there are serious concerns about the definitions of persistence or retention. They are rarely clear or exact: in questionniare studies, definitions frequently reflect students' self-reports and thereby include their intentions and expectations about their future educational plans. Studies that rely on transcript and registration data are similarly inexact, since in these instances, nonpersistence is somewhat arbitrarily defined by the number of semesters the student is not in attendance. The optimal design is one that uses registration data supplemented by the richer and more qualitative information that can be obtained through survey. The results of the study reported on herein contain very many leads to issues that need to be followed up in future research; among other important outcomes, our findings suggest that there may be some retention-related factors that are unique to students attending CUNY Community Colleges (e.g., the role of financial need variables) and that, conversely, many of the variables that have been related to persistence in Non-CUNY institutions may be irrelevant to the needs and actions of our

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[1] To question 25, 14.2 percent of the 1979 Persisters and 73.1 percent of the Nonpersisters reported that they were not in school during the 1980-81 year.

student body. A study that improves upon this one methodologically will yield better information for improving the quality and delivery of educational services.

SUMMARY AND CONCLUSIONS

During 1980-81, the CASE Institute for Research and Development in Occupational Education investigated persistence among career program students enrolled in CUNY Community Colleges. The purpose of the study, which was supported by the Bureau of Grants Administration of the New York State Education Department with VEA funds, was to contrast the characteristics of students who persisted in school with those who dropped out or stopped out. Being able to predict in advance which students are likely to leave school permits administrators and policy makers to institute programs of support and to allocate resources to reduce the costs nonpersisters represent to the institution and to themselves.

The research described in the body of this report was, in part, a supplement to an earlier study in which we identified characteristics that critically differentiated applicants to CUNY two-year schools who were likely to enroll from applicants who were not likely to enroll in the college and curriculum to which they were allocated. The results of the earlier enrollment study showed that it was possible to predict potential students' enrollment decisions at a level of accuracy far better than chance and early enough to develop or modify instructional and support programs.

The enrollment study focused on a random sample of students allocated to career programs for the Fall of 1979. The present research included a subset of these students, defined on the basis of their questionnaire responses as CUNY Persisters and Nonpersisters. Due both to the manner in which they were sampled and to their being questionnaire respondents, these 1979 Persisters (N = 383) and Nonpersisters (N = 29) were not representative of the population from which they were drawn. Thus, the differences that characterize them are not generalizable to the 1979 allocant universe--although they provide some clues about correlates of retention in CUNY Community College career programs.

However, in addition to the 1979 group, the 1980-81 retention study also examined a sample of students who had been allocated to the same

colleges and programs the prior year: the Fall of 1978. The 1978 CUNY Persisters (N = 230) and Nonpersisters (N = 68) were a more random sample, similar to the universe they were to represent. Moreover, there were fewer definitional problems with this sample and, as a result, the outcomes are more meaningful.

Basic descriptive data about the two samples was obtained from the CUNY application form and was supplemented by a specially-prepared questionnaire sent out initially in May 1981. A mail and telephone followup were subsequently administered; the combined rate of return was 25.9 percent for the 1979 sample and 13.4 percent for the 1978 sample. The administration of the survey occured about 21 months after the 1979 students were to enroll in college and about 33 months after the date of enrollment for the 1978 sample.

In addition to the Retention Questionnaire data--which included information about respondents' schooling history, educational aspirations, academic experiences, and reasons for enrolling in and continuing in college--for the 1979 respondents we also had data from the earlier enrollment study. A comparison of the characteristics affecting enrollment and retention was anticipated, and some comparison was made, but because of sampling difficulties it was not possible to assess this relationship longitudinally.

Both the 1979 Persisters-Nonpersisters and the 1978 Persisters-Nonpersisters were compared on all of the available variables. The resulting picture of the Nonpersister, based on the 1978 Sample, indicates that she/he does not differ from the CUNY Community College Persister in terms of age, sex, or marital and family status. While the majority of both groups lived with their family, a larger proportion of Nonpersisters lived alone or with friends. The groups' living arrangements did not influence travel time to school, and about three-quarters of them made the one-way trip in an hour or less.

While the proportions of Persisters and Nonpersisters who were allocated to their first-choice college were high and statistically equivalent, Nonpersisters showed less variance in the schools they selected, with the largest percentage opting for Queensborough Community College. (Most Persisters selected New York City Technical College as their first-choice.)

The difference in the educational aspirations of Persisters and Nonpersisters was highly significant; almost half of the latter group desired

some college education, but not necessarily a degree, or else a two-year college degree. The majority of Persisters, on the other hand, were likely to want a four-year college degree or a master's degree.

Financial aid, typically a combination of TAP AND BEOG, was the primary source of support for one-fourth of the Nonpersisters while they were in school. Interestingly, more Nonpersisters than Persisters did not work while they were attending college, and of those who did, significantly fewer worked at a paid job. The data are not clear with respect to the role played by financial need in the decision to drop out of school, however. Financial need variables, in particular, deserve additional study.

1978 Persisters and Nonpersisters also offered somewhat different reasons for enrolling in college, although both perceived college as a way to obtain a better paying job, to prepare for a better life, and to have the career they wanted. Persisters were more concerned with making contacts in college and with improving their qualifications for becomming a leader in the community; they were also more likely to indicate that there was nothing else to do if they didn't go on to school.

The difference in the importance the two groups attached to various reasons for continuing in school was marked. Clearly, Persisters perceived college as necessary to the fulfillment of their career goals; they also viewed the friends they would make at school as more important than Nonpersisters did.

As can be anticipated, Persisters' general satisfaction was higher--not only were they more likely to indicate that they would enroll in the same college if they had to do it over again, but relatively few would choose to postpone enrollment. More than half the Persisters planned to return to college in the fall following the administration of the Retention Questionnaire, whereas most Nonpersisters were definitely not planning to return to the school they left or to any other school.

Not merely more satisifed with college in general, Persisters were also more satisfied with their progress, their career goals, the curriculum they chose, and with the relationship between their major and their career choice.

As college students, Persisters were more likely to report that they had certain experiences: these related to the actual or perceived accessibility of department chairpeople, involvement in an organized activity, and a sense of identification with other students. When the two groups rated the quality of

college services, their different ratings suggested again that Persisters felt more a part of the college scene than did Nonpersisters and perceived the environment as friendly, helpful, and supportive.

The 1978 Nonpersisters' feelings of alienation from college were also reflected in their reasons for leaving school. They just "lost interest", didn't like the other students, and found college too difficult. Nonpersisters were also likely to give "full-time work" as a reason for dropping out.

Such differences as these between Persisters and Nonpersisters became the basis for the discriminant analyses employed to identify variables that would best predict whether given students would persist in CUNY Community Colleges. To meet the study's first objective--that of identifying a set of characteristics that distinguished Persisters from Nonpersisters--we conducted four discriminant analysis: two for the 1979 Sample and two for the 1978 Sample. The results (that is, the number of cases correctly classified) exceeded chance. Thus predicating retention can be done with confidence, and based on relatively few variables.

The study's second objective was to assess the generalizability of retention predictors. In other words, did the variables developed for one sample accurately predict retention for another sample? Two additional discriminant analyses were conducted, both based on variables identified for their significance in distinguishing the 1979 Persister from the 1979 Nonpersister. When the resultant discriminant function was used to classify the 1978 Sample into Persister-Nonpersister groups, the results were encouraging. Predictions were accurate in almost 80 (77.2%) of the instances, which again was better than what one would expect from chance assignment to groups. This suggests that despite the fact that the 1979 Sample was not well-defined, there are common variables that correlate with and predict retention for different cohort groups.

The third objective of the study, that of the relationship between enrollment in CUNY Community Colleges and persistence remains largely unanswered. Clearly, some of the variables that related positively to the decision to enroll in college continue to be factors in retention; it is also apparent that more social-personality and personal qualities come into play in the decision to remain in college--including one's educational aspirations as well as tenacity in pursuing career goals.

Generally, our findings (particularly with respect to the 1978 Sample)

accord with the results reported in the retention research literature. There are some indications, however, that the City University of New York's Community Colleges not only attract a unique population, but that some unique factors may relate to their tendency to persist in college. For this reason, as well as because of the limitations in this study design, additional research should be undertaken. To the extent practicable, this should be done on unit-by-unit basis as well as for the two-year system as whole.

APPENDIX A

1980-81 Questionnaire

STAYING IN COLLEGE: A SURVEY OF STUDENT RETENTION

CASE/Institute for Research and Development in Occupational Education
The Graduate School and University Center
City University of New York

№ 53880

STAYING IN COLLEGE: A SURVEY OF STUDENT RETENTION

As noted in the accompanying letter, we are surveying students to find out why some continue in college past the first year and why others do not. So that everyone uses the same basis to answer the questions, the word "college" in this Survey refers to any type of schooling beyond the high school level; we are also defining "this year" to mean the academic year that started last September (September 1980) and ended this May or June (1981).

1. What is your date of birth? Month:_____ Year:_____ 2. Sex? ☐ Male ☐ Female

3. Are you currently: ☐ Married ☐ Divorced/Separated ☐ Single

4. Do you have any children below the age of 18? ☐ No ☐ Yes; if yes, how many?____

5. Before starting college, did you speak with a counselor or teacher about your:
   - interests? ☐ No ☐ Yes
   - the subjects you were good in? ☐ No ☐ Yes
   - possible careers? ☐ No ☐ Yes
   - what to major in? ☐ No ☐ Yes
   - what school to attend? ☐ No ☐ Yes

6. Did you start college (or other type of school) in the semester immediately after high school? ☐ Yes ☐ No
   - If no, what did you do? ☐ worked outside home; ☐ married and worked in the home ☐ other: please describe_____
   - If no, when did you enroll in college? Month:_____ Year:_____

7. If you were just now making a decision about what to do after you finished high school, what one option would you choose.
   - ☐ Attend the same college I'm enrolled in
   - ☐ Attend another college
   - ☐ Not continue my education just yet
   - ☐ Work for a while (or take time off), then go back to college
   - ☐ Other; specify:_____

8. What is the name of the college (or other type of school) you attended this year (September 1980-May/June 1981)?_____
   - When did you enroll in this college? Month:_____ Year:_____
   - Is this the college (school) of your first choice? ☐ Yes ☐ No; if no, what was your first choice college?_____

9. Check to show the highest level of schooling you hope to obtain.
   - ☐ Some college, no degree
   - ☐ A community college degree
   - ☐ A four-year college degree
   - ☐ A master's degree
   - ☐ Trade or technical school certification
   - ☐ A doctorate (Ph.D., Ed.D.)
   - ☐ A professional degree (D.D.S., M.D.)
   - ☐ Other; specify_____

10. After you finish all schooling, what is your first-choice career?_____

_____

11. What is your current major?_____

*Before this major, did you have another one? ☐ No ☐ Yes; if yes, what was it?_____

_____

*Do you plan to change your major in the future? ☐ No ☐ Maybe ☐ Yes; If maybe or yes, what will you change to?_____

12. Below is a list of reasons that may influence a person's decision to enter college or some other form of educational training program after high school graduation. Whether or not you were in school this year, we want you to go through the list two times.

FIRST read each reason to decide how important it was in your ORIGINAL decision to ENROLL in college. Indicate your rating by circling a number to the LEFT of the statement.

SECOND go through the list again and circle a number to the RIGHT of each statement to show how important each reason is in your decision to CONTINUE in college.

FOR BOTH RATINGS USE THIS SCALE:

1 = Of NO Importance
2 = Of SOME Importance
3 = Of MODERATE Importance
4 = Of GREAT Importance

Decision to ENROLL		Decision to CONTINUE
1 2 3 4	My teachers thought I was good college material	1 2 3 4
1 2 3 4	More education was necessary for the career I wanted	1 2 3 4
1 2 3 4	More education would help me be a better spouse	1 2 3 4
1 2 3 4	Business, church, or other community leaders thought I was good college material	1 2 3 4
1 2 3 4	My parents wanted me to have a higher education	1 2 3 4
1 2 3 4	I had a compelling interest in one area of specialty	1 2 3 4
1 2 3 4	The people I most respect have college degrees	1 2 3 4
1 2 3 4	I felt that the contacts I would make in college would help in my career	1 2 3 4
1 2 3 4	I hoped to make many new friends in college	1 2 3 4
1 2 3 4	More education would help me get a better paying job	1 2 3 4
1 2 3 4	I wanted to improve my qualifications for becoming a leader in community affairs	1 2 3 4
1 2 3 4	Most of my friends were in or were going to go to college	1 2 3 4
1 2 3 4	It was always expected that I would go to college	1 2 3 4
1 2 3 4	There was nothing else to do if I didn't go	1 2 3 4
1 2 3 4	I wanted to learn more about certain subjects	1 2 3 4
1 2 3 4	College was a way of preparing myself for a better life	1 2 3 4

13. For each statement below, please rate how satisfied you are.

DEGREE OF SATISFACTION:	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
The college I attended this year				
The curriculum (major) I chose				
The quality of the education I received				
My decision to go to college				
The progress I'm making				
My current career goals				
The relationship between my major and my career goals				
The likelihood that I will finish all my education				

14. We would like your opinion about some of the services and the quality of education offered by the college you attended this year or the one you most recently attended. Please answer this question whether or not you were in school this year (September 1980-May/June 1981), or if you had ever started college after high school.

Indicate your opinion about each item on the list below by circling a:

1 = Poor	3 = Good
2 = Average	4 = Excellent

The services the admissions office provides are.....1 2 3 4
In general, the size of my classes is.....1 2 3 4
The variety in sources of financial aid available to students is.....1 2 3 4
The effort the college makes to place graduates in jobs related to their career is...1 2 3 4
The number of courses available in my major field of study is.....1 2 3 4
The kind of facilities (labs, equipment, etc.) available to students in my major is..1 2 3 4
In terms of my interests, the school library is.....1 2 3 4
The library staff provides services that are.....1 2 3 4
The conditions for using the library to study are.....1 2 3 4
The variety of student activities are.....1 2 3 4
The quality of the student activities are.....1 2 3 4
The availability of advisors to work with students on educational problems is.....1 2 3 4
The availability of advisors to work with students on career-related decisions is....1 2 3 4
The advice or recommendations I get from advisors is.....1 2 3 4
The level of teaching skills of my instructors is generally.....1 2 3 4
The knowledge my instructors have about their subject matter is.....1 2 3 4
When it comes to giving me help with a course-related problem, my instructors are....1 2 3 4
The opportunities to meet with my instructors are.....1 2 3 4
Looking back, my decision to attend this school was.....1 2 3 4
The college's system for letting students contest their grades is.....1 2 3 4
The chances students have to play an active role in setting school policy are.....1 2 3 4
The attention given to student grievances is.....1 2 3 4

15. Below is a list of statements about you as a student and about the college you attended this year (September 1980-June 1981) or most recently. Read each one carefully, decide how true it is of you and your experience, and circle a number to indicate your answer:

1 = Mostly False	3 = Somewhat True
2 = Somewhat False	4 = Mostly True

The college provides orientation for entering students.....1 2 3 4

I took part in the college's orientation program.....1 2 3 4

The college offers special instruction in study habits ("how to study").....1 2 3 4

I took part in the college's program to improve my study habits.....1 2 3 4

My college emphasizes student counseling and advisory services.....1 2 3 4

My college requires me to see a counselor or advisor periodically during the school year.....1 2 3 4

My college assigns me a specific advisor.....1 2 3 4

My advisor/counselor helps with personal problems.....1 2 3 4

The professors present material clearly and unambiguously.....1 2 3 4

My professors' class presentations are interesting.....1 2 3 4

My professors set goals for the class at the beginning of each semester.....1 2 3 4

My professors explain the course requirements at the beginning of the semester.....1 2 3 4

In addition to required courses, in my first year I was able to take other interesting courses.....1 2 3 4

There are people to help me select the courses I want or need.....1 2 3 4

My professors emphasize intellectual and cultural pursuits outside the classroom.....1 2 3 4

The chairperson of my department (program) has adequate office hours for students....1 2 3 4

I've met and talked to the chairperson of my department (program).....1 2 3 4

I take part in at least one organized activity at college (clubs, sports, newspaper, etc.).....1 2 3 4

In general, my classmates are friendly.....1 2 3 4

I consider my classmates as peers.....1 2 3 4

My classmates and I have the same degree of determination about finishing college....1 2 3 4

My classmates and I have similar goals in life.....1 2 3 4

In addition to going to classes, most of my classmates have jobs.....1 2 3 4

I've been able to make friends here.....1 2 3 4

There is a lounge where students gather during their free time.....1 2 3 4

Overall, I feel comfortable in this school.....1 2 3 4

My college has strict rules about cutting classes.....1 2 3 4

At or nearby the college is a well-stocked bookstore.....1 2 3 4

The college offers students a variety of social activities.....1 2 3 4

16. For this year in school (September 1980-June 1981), what types of financial aid did you receive? (Check all that apply.) Check here if you were in school and did not receive financial aid:____

☐ TAP ☐ personal loan ☐ trust fund ☐ tutorial/research aid
☐ BEOG ☐ bank loan ☐ work-study ☐ Other; please specify:___
☐ NDSL ☐ scholarship ☐ Veteran's benefit _____

17. How long is the one-way commute between your home and school?_____Hours _____minutes

18. During this year while you were in school, with whom did you live?

☐ alone ☐ with friends ☐ with spouse and/or children
☐ with parents ☐ with relatives ☐ other; specify:_____

19. How likely is it that you would have had the same living arrangements if you were not in school?

☐ Very unlikely ☐ Somewhat unlikely ☐ Somewhat likely ☐ Very likely

20. During this year while you were in school, were you supported mainly by:

☐ earnings of your own ☐ by parents/guardian
☐ savings of your own ☐ by a spouse
☐ some type of financial aid ☐ in another way; specify:_____

21. Generally, do you support yourself financially? ☐ No ☐ Yes; if yes, counting yourself, how many people do you support?_____

22. This year in school, did you work? ☐ No ☐ Yes; if yes, about how many hours a week did you work on the average? _____hours.

23. Please answer this question if you worked during school this year. If you did not work at a paying job, check here:_____

MY JOB	Mostly False	Somewhat False	Somewhat True	Mostly True
The job was related to my course work				
The job will help me reach my career goals				
I was satisfied with the job				
I worked mostly for money				
I worked mostly for the fringe benefits				
I worked mostly because I enjoy working				

24. Do you plan to go back to the same school in September 1981 that you attended this year (September 1980-May/June 1981)?

☐ Yes, definitely ☐ Probably not ☐ I plan to go to another college
☐ Maybe ☐ Definitely not ☐ I'll do something else; what?____
_____

25. We are interested in whether you ever changed colleges, and if so why; and whether you ever stopped or dropped out of college temporarily or permanently.

If yes, you did change colleges, check here:____
If yes, you did stop or drop out, check here:___

If you checked yes to either question, read each statement below and indicate how true each of the listed reasons was in your decision to change schools or to drop out.

REASONS FOR CHANGING OR DROPPING OUT OF COLLEGE:	Mostly False	Somewhat False	Somewhat True	Mostly True
College was too expensive				
College was too difficult				
College was too easy				
The college didn't offer a program of interest to me				
I didn't like the instructors				
I didn't like the other students				
I didn't like the geographic location				
I became too ill or disabled to continue				
Because of illness in my family				
Because of personal financial reasons				
Because of family financial reasons				
I wasn't really ready for college				
I was needed at home				
I was getting married				
I wanted to raise a family				
I wanted to work full time				
I was lonely and unhappy at college				
I had marital or other family problems				
I was discouraged by my grades or progress				
I just lost interest in school				
I was put on probation because of grades				
I was dismissed because of grades				
I was asked to leave for reasons other than grades				
The job I wanted didn't require college				
My friends go to another school				
The college was too small				
The college was too large and impersonal				
I didn't like the social life at college				
The college didn't offer adequate financial aid				
The policies of the college were too childish				
The academic standards were too high				
The academic standards were too low				
I wasn't getting anything out of college				
Other reasons; specify:_____				

APPENDIX B

Comparison of 1979 and 1978 CUNY Persisters and Nonpersisters on Selected "Old" Variables

APPENDIX B

A Comparison of the 1979 CUNY Persisters and Nonpersisters (the 1979 CUNY Retention Sample) on Selected, Significant "Old" Variables[1]

The Enrollment study (conducted by IRDOE during 1979-80) examined approximately 180 variables. These same data exist for the present 1979 CUNY Retention Sample and indicate that Persisters differed from Nonpersisters on a total of 19 of them. Select ones of these variables, with mean scores or percentages for the Persister and the Nonpersister groups, are presented in Table B1 which follows. Here, we will briefly summarize the outcomes.

More Persisters than Nonpersisters took the PSAT/SAT test in high school, suggesting that they have a stronger academic orientation and/or are more interested in colleges that require these tests. Their college admissions average score was higher than that of the Nonpersisters, largely because they did better in high school math and science. Relatedly, Persisters were less likely to be required to take remedial courses in college. They were also more likely to know the difference between the Associate and Baccalaureate degree, to be more certain of getting a job in their chosen career field upon graduation from college, and to believe that a four-year degree is necessary for a good job. (In contrast, Nonpersisters felt that high salaries are possible with a high school diploma.)

More Persisters were enrolled in a curriculum judged relevant to their career goals, and to have selected a CUNY college located in the Borough of Queens at their first-choice school. Nonpersisters were more likely to opt for an accounting or data processing program and to be allocated to one.

In general, at the time the Enrollment Questionnaire was administered (during the Spring of 1980), a significantly greater proportion of Nonpersisters was dissatisfied with school, the education they were receiving, their major, career goals, and with their decision to pursue a postsecondary education.

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[1]For a complete description of these variables, see B.R. Heller, F.W. Wheeler, and W. Geringer. Critical Characteristics of Incoming CUNY Community College Freshmen: A Study of the Characteristics of Enrollees and Nonenrollees. Graduate school and University Center, City University of New York, Institute for Research and Development in Occupational Education, CASE #03-81, Octobrer 1981.

For the CUNY two-year college students who responded to the 1980-81 questionnaire and who had been allocated to a two-year CUNY college for Fall 1978, some background information was also available. This consisted of a college admissions average score which is made up of grades in selected high school courses: English, foreign language, mathematics, science, and social science. Also available were the average number of credits earned in each of these subjects. These data are presented in Table B2.

A comparison of 1978 Persisters' and Nonpersisters' high school averages showed no significant differences. The largest difference was 2.5 (for mathematics), but even here there was sufficient variation within each group so that the difference between their means was not statistically significant. There was also no significant difference in the number of credits.

On the basis of these data, therefore, it must be concluded that the 1978 Persisters and Nonpersisters do not differ in these aspects of their academic background and other variables must be considered in describing the groups of students who will and will not remain in college.

TABLE B1

A COMPARISON OF 1979 PERSISTERS AND NONPERSISTERS
ON SELECTED, SIGNIFICANT "OLD" VARIABLES

VARIABLES:	1979 CUNY Persisters	1979 CUNY Nonpersisters	Diff. (P-NP)
Took PSAT/SAT in H.S.	62.7%	51.4%	+11.3 *
Knew difference bet. AAS/BA-BS	2.28	1.96	- 0.32**
Likelihood of getting job in career field	3.45	3.16	- 0.29**
Possible good job w/4-yr. degree	2.76	2.52	+ 0.24**
Possible high salary w/HS diploma	1.66	1.92	- 0.26**
Required to take remediation	4.17	5.45	- 1.28*
Satisfaction w/career goals	2.57	2.19	+ 0.38*
% Dissatisfied (index of 8 items)	47%	86%	- 0.39$^{\Delta}$
College admissions average	74.89	72.41	+ 2.48$^{\Delta}$
1st-choice program: accounting	14%	34%	-20.00*
1st-choice program: data processing	7%	17%	-10 **
1st-choice location: Queens	29%	50%	-21 **
Curriculum related to career goals	89%	75%	+14 **
Allocated to accounting program	15%	34%	-19 *
Allocated to data processing program	7%	17%	-10 **

Note: * = $<.01$
** = $<.05$
$^{\Delta}$ = $<.10$

TABLE B2

A COMPARISON OF 1978 PERSISTERS (P) AND NONPERSISTERS (NP) ON SELECTED ACADEMIC VARIABLES[a]

VARIABLES:	P (N=260)	NP (N=68)	Diff. (P-NP)
College admissions average	74.3	73.8	+0.5
HS English average	74.4	75.1	-0.7
HS foreign language average	76.5	75.0	+1.5
HS math average	71.3	68.8	+2.5
HS science average	73.3	72.5	+0.8
HS social studies average	73.7	73.7	0
No. HS English credits	3.1	3.2	-0.1
No. HS foreign language credits	2.1	2.2	-0.1
No. HS math credits	1.8	1.9	-0.1
No. HS science credits	1.7	1.8	-0.1
No. HS social science credits	2.4	2.3	+0.1

[a]These data are from the CUNY application form.

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